Exhibit 6

IN THE UNITED STATES DISTRICT COURT

FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

No. 1:15-cv-399

SANDRA LITTLE COVINGTON, et al., *Plaintiffs*, v. STATE OF NORTH CAROLINA, et al., *Defendants*.	**DECLARATION OF ANTHONY E. FAIRFAX**

I, Anthony E. Fairfax, am over the age of 18 and fully competent to make this declaration. Under penalty of perjury, I state the following:

Introduction

1. I was asked to examine the racial demographics of four districts in the 2017 House and Senate plans enacted by the North Carolina General Assembly on August 31, 2017. Those districts are senate district (SD) 21 & 28, and house district (HD) 21 and 57. In addition, it was requested that I examine how those districts divide the related municipal boundaries. As a result of my examination, I was asked to prepare maps that visually illustrate the racial characteristics of the voting age population in these districts (with a specific focus, on black voting age population).

2. Currently, I am a demographic and mapping consultant and CEO/Principal Consultant of CensusChannel LLC. In that role, I have developed several hundred redistricting plans during the last three redistricting cycles. For the last twenty-six years, I have provided consulting services for numerous non-profit and public sector groups centering on redistricting plan development, analysis, and training.

3. Throughout this recent redistricting cycle, I have provided services and/or training for several notable organizations including: The Advancement Project, Congressional Black Caucus Institute, Louisiana Legislative Black Caucus

(LLBC), National NAACP, the Southern Coalition for Social Justice (SCSJ), and the Alabama Democratic Conference (ADC).

4. In addition, I have testified in federal and state court and provided several depositions as a redistricting expert with a focus on demographic and mapping analysis. Recently, I testified twice in the latest Federal Texas redistricting case. Testimony in this case included analysis of several congressional and house district plans for the state of Texas focusing on certain characteristics, including population deviation, compactness, political subdivision splits and communities of interest. Prior to that testimony.

5. I also testified in the precursor Texas case of *Perez v. Perry*, which included reviewing and analyzing Texas congressional and house district plans using traditional redistricting principles with a focus on compactness. The analysis in the Texas case also included providing demographic projections for congressional and legislative house districts. In North Carolina statewide redistricting cases, I have analyzed the compactness and demographics of congressional and state legislative districts. Additionally, I have generated maps that analyzed split precincts as well as developed Alabama statewide senate and house redistricting plans, both submitted to the court in a recent case in Alabama.

6. In the course of this redistricting cycle, I was involved in several unique redistricting opportunities that were afforded to me because of my expertise. I was one of the two Project Managers for a week-long redistricting expert preparation session. The training session was sponsored by Duke University's Center for the Study of Race, Ethnicity and Gender in the Social Sciences (RGESS) and the SCSJ. In that capacity I developed and managed a section focused on preparing 18 political cartographers, with Geographic Information System (GIS) backgrounds, with the goal of them becoming redistricting demographic and mapping related experts.

7. Another such opportunity included performing the duties as consulting demographer and project director for the Congressional Black Caucus Institute's Redistricting Project. In that role, I provided redistricting plan development, review and analysis as well as answered various questions pertaining to the redistricting process.

8. The details of my redistricting/GIS experience and work as an expert are contained within my attached resume (see Appendix 1).

Methodology

9. The data utilized were obtained from the North Carolina General Assembly website. Two forms of data were utilized for the analysis, geographic (which

included the recent shapefile boundaries for the senate and house plans) and demographic (which included the redistricting population base data). The plan that was analyzed for the senate districts was Senate Bill 691, 2017 Senate Floor Redistricting Plan – 4th Ed.[1] The plan for the house districts was House Bill 927, 2017 House Redistricting Plan A2.[2]

10. The demographic data obtained from the NC General Assembly website were in ESRI geodatabase format that were previously merged with their respective geographic boundaries of blocks, VTDs, cities (places), and counties.[3]

11. The software utilized for the analysis was ArcMap (a component of ArcGIS by ESRI). ArcGIS is one of the most widely used full capability Geographic Information Systems (GIS) on the market. ArcMap is widely used by businesses, consultants and governmental entities for geospatial analysis.

12. Thematic color maps were generated using ArcMap to view the concentration and illustrate the black voting age populations (BVAP) contained within and around the targeted senate and house districts in North Carolina.

13. The thematic maps consisted of coloring the census blocks (blocks) or voting tabulation blocks (VTDs) by their respective BVAP percentage. In order to provide better insight to the disbursement of black voting age population, both 4 and 5 intervals (intervals) were used. The four interval maps provided break points of 25% (e.g. 25%, 50%, etc.). Since the four interval thematic maps include break points at 50% and 75%, they provide an excellent graphical depiction of which blocks are majority black and significantly black. Throughout the maps a color consistency was deployed. For example, all district boundaries were presented in a dark blue while the focus city was presented in a transparent green.

14. The 5 interval thematic maps included breaks for the BCVAP%[4] of 20% (20%, 40%, etc.). The 5 interval maps provided insight to whether blocks with slightly less than 50% are contained within the districts. The 40% to 60% interval captured a more realistic depiction of the demographic disbursement that was slightly below 50% than the 25% to 50% interval used in the four interval maps.

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[1] Senate Bill 691, 2017 Senate Floor Redistricting Plan – 4th Ed.
http://www.ncleg.net/Sessions/2017/s691maps/s691maps.html

[2] House Bill 927, 2017 House Redistricting Plan A2
http://www.ncleg.net/Sessions/2017/h927maps/h927maps.html

[3] http://www.ncleg.net/representation/Content/BaseData/BD2011.aspx

[4] For this examination, BCVAP included "all" voting age populations that are black.

15. The four interval maps use the colors of red for BVAP% greater than 75%, orange for 50% to 75%, pale for 25% to 50% and white for 0% to 25%. The five interval maps use the colors of red for BVAP% greater than 80%, orange for 60% to 80%, yellow for 40% to 60%, pale for 20% to 40% and white for 0% to 20%. These color schemes were used for both block and VTD level thematic maps.

16. Once the thematic maps were generated, observation were made on each district regarding to the district location and configuration of black voting age population. These observations included whether majority BVAP blocks or VTDs were grouped together and included in the district and whether majority white areas were not added or have the appearance of being carved out of the district.

Summary of Key Findings of SB691 SD21

17. The thematic map in Appendix 2 reveals that the district wholly contains Hoke county and a portion of Cumberland county. The map also indicates that all of the majority black VTDs for both Hoke and Cumberland counties are contained within SD21 (Appendix 2). This can be seen on the map by viewing the VTDs that are red and orange. These VTDs are only included inside the district for both counties. In addition, when viewing the district at the block level, SD21 contains the bulk of the majority black blocks that are within the county boundaries (see Appendix 3).

18. SD21 also extends from Hoke county into Fayetteville located in Cumberland, county. When examining the district in Fayetteville, SD21 cuts through downtown Fayetteville and only includes the majority black VTDs as well as practically all of the majority black blocks (Figure 1 and Appendix 4). Figure 1 and the maps in Appendix 4 show the green transparent overlay for Fayetteville. Both Fayetteville zoom maps show that the district encompasses the majority and significantly black areas (red, orange, yellow on the 5-interval) and includes them in the district. At the same time, it avoids the majority white areas of Fayetteville, shown with the light green background (Figure 1).

19. Lastly, SD21 includes a VTD that is split with a significant number of blocks that are majority black and contained within the district. A review of the map in Appendix 5 shows that a substantial number of majority black blocks in G2 have been placed in SD21 (below the blue SD21 boundary line for the district). The maps in Appendix 5 shows a cluster of black population residing in the area on the southern border of G2 (red, orange, yellow).

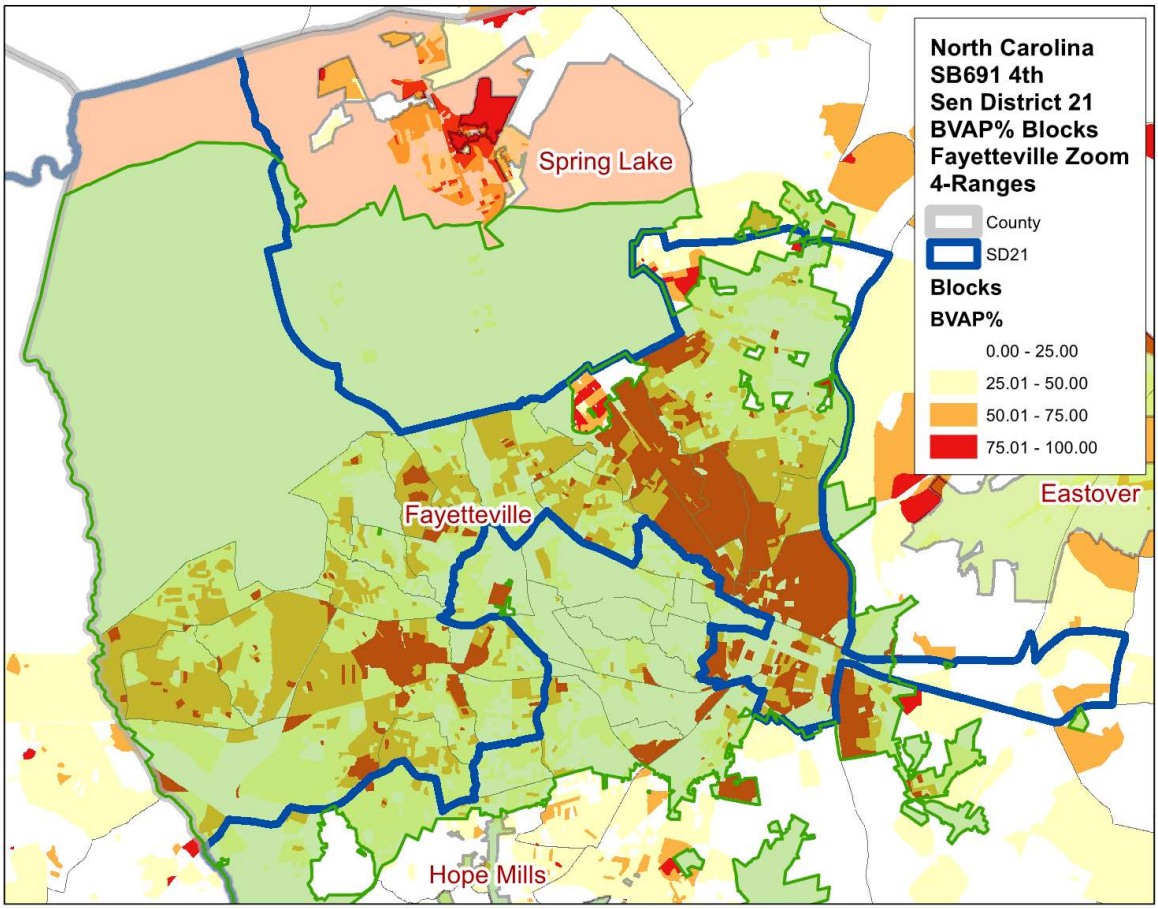


Figure 1 – BVAP% Map of Fayetteville, NC of SD21 at the Block Level

Summary of Key Findings of SB691 SD28

20. Examination of the map in Appendix 6 shows that SD28 is wholly contained within Guilford county. The next map in Appendix 7 also indicates that the district boundaries (blue lines) include all of the majority black VTDs within Greensboro, NC.

21. The block level maps found in Appendix 8, shows that SD28 follows the contour of the majority or significant black populated blocks. This can be seen by viewing the red, orange, and yellow blocks that are included in the district that spans the northeast to southeast and southeast to southwest portions of Greensboro (Figure 2). This configuration forms the reverse "L" shape of the district. Most of the remaining portions of Greensboro, which are majority white areas, are left out of the district.

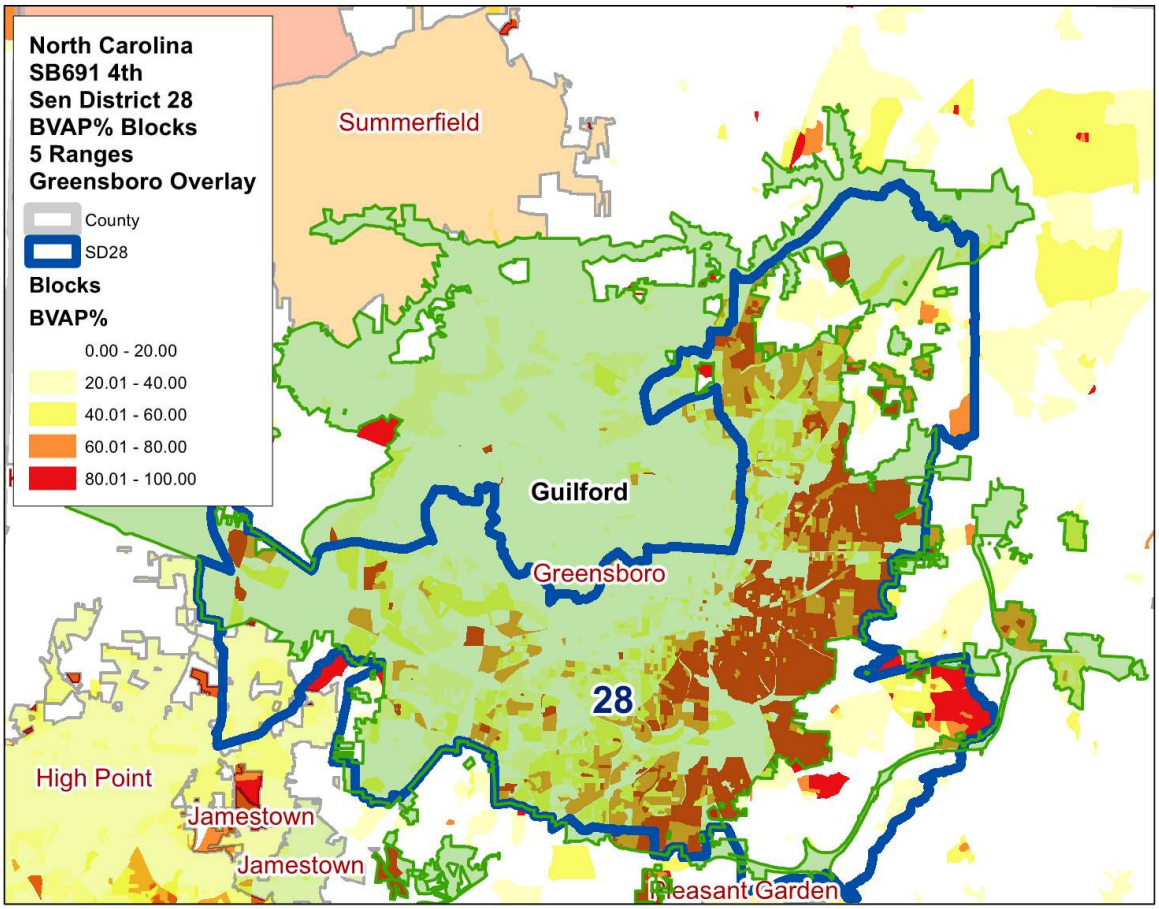


Figure 2 – BVAP% Map of SD28 at the Block Level w/Greensboro Overlay

Summary of Key Findings of HB927 HD21

22. The map of Appendix 9 shows that HD21 extends from the northeast of Sampson county to the central area of Wayne county.

23. Examination of the map in Appendix 9 shows that HD21 contains all of the majority black VTDs within Sampson and Wayne counties, with the exception of one VTD located in Sampson county (not shown on the maps provided).

24. The block level maps contained in Appendix 10 show similar results as the VTD maps, specifically in Wayne county. With the exception of a few blocks located in the north section of Wayne, the overwhelming amount of majority black blocks are contained with the district.

25. Another observation was made for Clinton, NC, which is located near central Sampson county. Only the VTDs and mostly the blocks that contain significant

black population in Clinton, NC are included in the district. Reviewing Appendix 11, areas shown in the light green represent majority white census blocks that lie outside of the boundaries of the district.

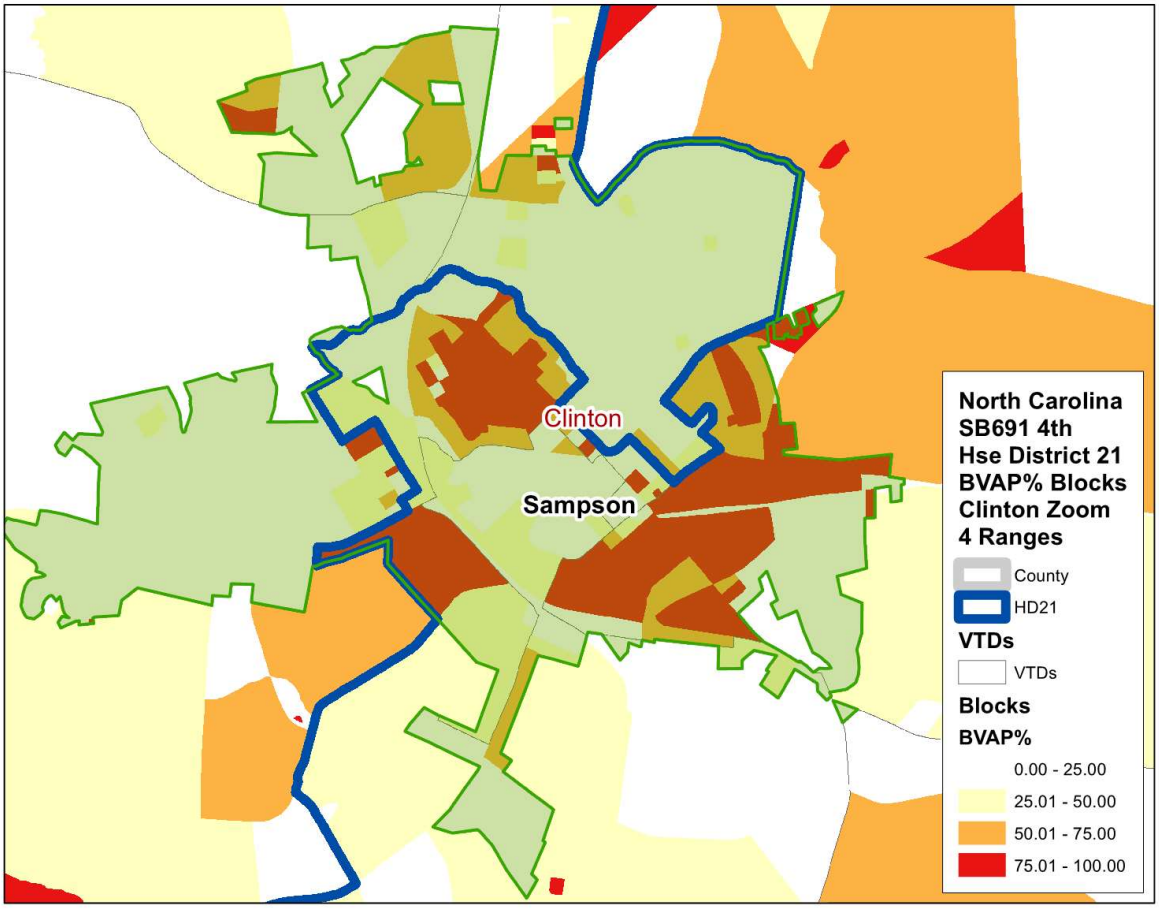


Figure 3 – BVAP% Map of HD21 at the Block Level w/Clinton Overlay

Summary of Key Findings of HB927 HD57

26. Examination of the map in Appendix 12 shows that HD57 is wholly contained within Guilford county and consisting of mostly majority black VTDs. The next map in Appendix 13 also indicates that the district boundaries include the bulk of the majority black blocks that are contained within Greensboro, NC. As with senate district 28, which it located in the same Greensboro area, the districts form a reverse "L" shape that gathers black blocks from northeast to southeast and traverses from southeast toward the west on the southern end of the district.

27. Finally, Figure 4 below as well as the maps contained within Appendix 14 shows that the HD57 is formed by following mostly the majority black and significantly black blocks on the northeast to southeast part of Greensboro.

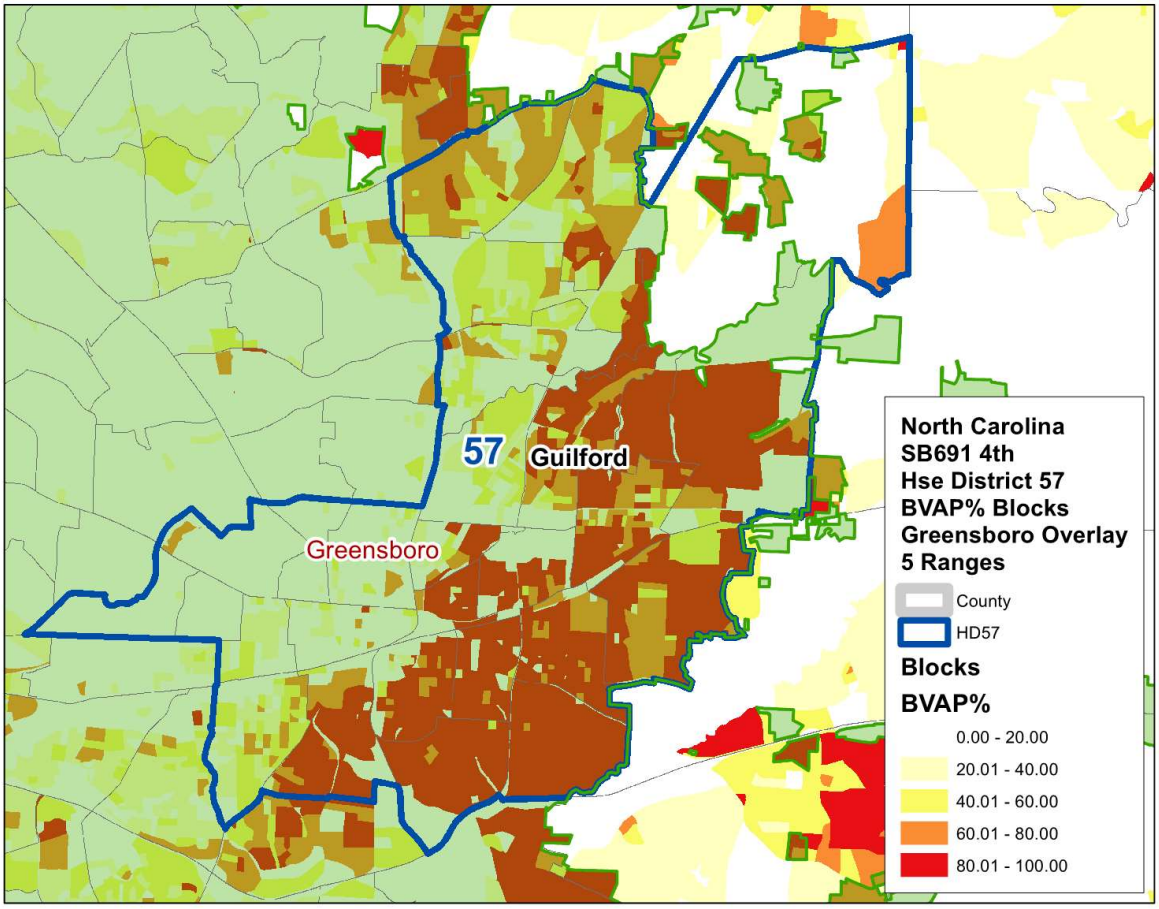
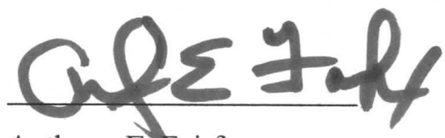


Figure 4 – BVAP% Map of HD57 at the Block Level w/Greensboro Overlay

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 15 day of September, 2017.



Anthony E. Fairfax

Appendix 1

Anthony "Tony" Fairfax

16 Castle Haven Road, Hampton, Virginia 23666
Office Telephone: (757) 838-3881/Home Telephone: (757) 838-0832
Email: fairfax@censuschannel.com

Experience Highlights:

- Demographic, Geographic & Voter Data Analysis
- Multiple GIS Software/Census Data Skillset
- Redistricting Plan Development & Analysis
- Expert Report Development & Court Testimony
- Project Management, Planning & Budgeting
- Client Acquisition, Collaboration & Support
- Professional Presentation/Training Experience
- Manual/Book Publication Development

Education:

Master of Geospatial Information Science and Technology (2016)
North Carolina State University, Raleigh, North Carolina

Graduate Certificate in Geospatial Information Science (2016)
North Carolina State University, Raleigh, North Carolina

Bachelor of Science Degree in Electrical Engineering (1982)
Virginia Tech, Blacksburg, Virginia

Work Experience:

CensusChannel LLC, Hampton, VA (2009 - Present)
CEO & Principal Consultant - Providing overall project management and operations as well as primary consulting services for clients. Also, responsible for customer acquisition and support. Core tasks include GIS-centered services: redistricting support (extensive use and analysis of traditional redistricting criteria or guidelines); demographic/socioeconomic, geographic, voting data; GIS/Census Data/Redistricting training; GIS data processing/conversion; expert redistricting plan development, analysis, depositions, testimony, and training. Major clientele and projects include:

- **The Rehab Crew, Durham, NC (2017 - Present)** - Providing geospatial & demographic analysis as well as website development and a proprietary application for use of targeting real estate investment properties.
- **Southern Coalition for Social Justice [SCSJ], Durham, NC (2015 - 2016)** - Provided several expert reports, depositions and testimony for multiple redistricting court cases in North Carolina. Testimony, depositions and reports included numerous plans at the congressional, state senate, state house, and local jurisdiction level. Analysis covered certain district characteristics, including population deviation, political subdivision splits, partisan performance, and incumbent effect analysis.
- **Congressman G.K. Butterfield, NC (2016)** - Developed several congressional district plan alternatives for the State of North Carolina. Provided various analysis on alternative district configurations.
- **Alabama Democratic Conference (ADC), Montgomery, AL (2015 - 2016)** - Developed state senate and house redistricting plans for the state of Alabama in response to the *ADC v Alabama* court case. Also, provided a series of thematic maps depicting areas added from the previous plan to the enacted plan, displaying concentrations of African American voters that were added to the enacted plan.
- **Net Communications, Tallahassee, FL (2014 - 2015)** - Generated offline mapping and online web services (ArcGIS.com) of client's energy company's resources and organizational assets. Mapping included demographic, socioeconomic, and other resources of the energy company.

- **National NAACP Office of General Counsel, Baltimore, MD (2012 - 2013)** - Provided project management and developmental support for the creation of a final report for the NAACP National Redistricting Project. Provided planning, organizing, supplemental writing, and interfacing with graphics entity for the complete development of the final report.
- **Congressional Black Caucus Institute, Washington, DC (2011 - 2012) -** Provided contract duties as the Project Director and Consulting Demographer for the Congressional Black Caucus Institute's Redistricting Project. Provided project management, redistricting plan development, review, analysis, advice, and answers to various questions pertaining to redistricting plans, principles, and processes.
- **Mississippi NAACP, Jackson, MS (2011) -** Developed state senate plans and analyzed enacted plans that were developed by the State Court.
- **African American Redistricting Collaborative (AARC) of California, Los Angeles, CA (2011) -** Provided demographic and redistricting contracted services. Responsible for developing congressional, state senate and state assembly plans for the collaborative. Special focus was given to the southern Los Angeles area (SOLA) and the Bay Area region. In addition to plan development, several socioeconomic maps were developed to show various communities of interest commonalities.

  Developed a demographic profile using maps and reports of California's congressional, state senate, and state assembly districts for the purpose of preparing for the redistricting plan development process by identifying areas of growth throughout the state. The profiles included data from the American Community Survey (ACS) 2005-2009 and the 2010 Census.
- **The Advancement Project, Washington, DC (2011) -** Provided redistricting plan development services and training. Included was the development of a base map for a new seven (7) district plan in New Orleans that were further developed by community groups in Louisiana. The second effort included training a staff person on the use of Maptitude for Redistricting as well as on various redistricting scenarios.
- **Louisiana Legislative Black Caucus (LLBC), Baton Rouge, LA (2011) -** Provided redistricting plan development services. Responsibilities included supporting the Caucus members' efforts to develop state house, state senate, and congressional redistricting plans. Developed or analyzed over eighty different redistricting plans. The effort also included testifying in front of the Louisiana Senate and Governmental Affairs committee.
- **Community Policy Research & Training Institute (One Voice), Jackson, MS (2011) -** Developed Mississippi State Senate plan along with appropriate reports and large scaled map.
- **National Black Caucus of State Legislators (NBCSL), Washington, DC (2010)** - Provided services as the Project Director for a 2010 census outreach effort. Developed proposal and managed personnel to generate and execute a strategy to utilize black state senate and house legislators to place targeted posters in select hard-to-count (HTC) areas throughout the country.
- **Duke University's Center for REGSS & SCSJ, Durham, NC (2010 - 2011) -** Contracted to serve as one of two Project Coordinators to support an expert preparation workshop hosted by Duke University's REGSS and the Southern Coalition for Social Justice.

  Project Coordinator duties included developing, managing, and providing hands-on training for the Political Cartographer's side of a week-long intensive "redistricting expert" preparation workshop. The workshop trained 18 political cartographers, who came from various parts of the country, on all aspects of redistricting plan development and principles. Also, developed two hands-on redistricting scenarios that were developed in order for the workshop to train large audiences on the plan development process without the use of computers.

Democracy South, Virginia Beach, VA (2004 - 2008)
Senior Technical Consultant - Provided technical, GIS mapping, data analysis, and management support for several projects and civic engagement related efforts. Major project efforts included:

- Senior Technical Consultant for the National Unregistered Voter Map. Developed a web-based interactive map that allowed visitors to view state/county level information pertaining to the number of unregistered voters (2009)
- Co-Director of the Hampton Roads Missing Voter Project (a nonpartisan nonprofit voter engagement effort to increase voter participation with a focus on underrepresented population groups). The effort covered the seven major Independent cities in Hampton Roads. Responsibilities included co-managing the overall civic engagement effort and was solely responsible for integrating and processing Catalist voter data into targeting maps and walk lists for all focus areas. Directly Responsible for overseeing the operations in Hampton, Newport News, Portsmouth, and Suffolk, Virginia (2008)
- Senior Technical Consultant for Civic Engagement Efforts. Provided telephone technical voter database support to 17 USAction state partners in 2004; and 12 USAction state partners in 2006. Trained client on VBASE voter data software; Performed voter data conversion; and voter targeting assistance.

Congressional Black Caucus Institute, Redistricting Project, Washington D.C. (2001 - 2003)
Consulting Demographer - Provided services that included the development, review, and analysis for over 75 congressional district plans. Responsible for all setup and configuration of hardware and GIS software. Also, performed the development and analysis of redistricting plans. Congressional district plans were developed for 22 states. Also, performed as a redistricting expert advisor in a consolidated U.S. District court Voting Rights case in Alabama.

National Voter Fund, Washington, D.C. (2000)
GIS Consultant (in a consulting partnership of Hagens & Fairfax) - Developed hundreds of precinct targeting maps for a civic engagement effort designed to increase the turnout in the November 2000 election. Efforts included: geocoding voter data; census data integration; and precinct mapping.

Norfolk State University, Poli. Science & Computer Science Dept., Norfolk, Virginia (1996 - 2001)
Adjunct Faculty - Provided instruction to students for BASIC Programming, Introduction to Computer Science, and Computer Literacy courses.

GeoTek. Inc. (formally GIS Associates), Virginia Beach, VA (1992 - 1995)
Consultant and Co-owner - Provided geodemographic research and analysis; client technical & training support; hardware/software system installation; and redistricting manual/ brochure development. Major clients and tasks included:

- New York City Housing Authority - Redistricting Training
- Maryland State Office of Planning - Redistricting Tech Support
- City of Virginia Beach, VA Planning Dept. - Redistricting Training/Tech Support
- City of Norfolk, VA Registrar - Redistricting Training/Tech Support
- City of Chesapeake, VA Registrar - Precinct Realignment

Norfolk State University, Political Science Dept., Norfolk, Virginia (1991 - 1999)
GIS Consultant - Provided a variety of geographic and demographically related tasks. Major Redistricting related tasks included:

- Installed and operated the LogiSYS ReapS software that was used to perform the bulk of redistricting plans. Performed the intricate ReapS processing of the U.S. Census Bureau Topographically Integrated Geographic Encoded Referencing (TIGER) line files, Public Law 94-171 (PL94-171) demographic data, and the STF socioeconomic data series.
- Developed over 200 hundred redistricting plans, located in over 60 jurisdictions, in the states of Florida, Louisiana, North Carolina, Texas, and Virginia. Developed plans from city/county to legislative to congressional district.
- Traveled to and trained several university faculty personnel on setting up and utilizing the ReapS redistricting system. Also, trained on redistricting plan development principles.

Major GIS related tasks included:

- Performed a study commissioned by the U.S. Department of Transportation to analyze the ethnic differences in commuting behavior. This study extensively utilized the Summary Tape File 3 A (STF3 A) and Public Microdata Sample (PUMS) data to locate, map and report the frequency and average travel time to and from work for: Miami, FL MSA; Kansas City, MO-KS MSA; and Detroit, MI MSA.
- Performed a study funded by the City of Norfolk, VA and NSU School of Business that determined and analyzed the trade area of a section located in Norfolk, VA. Major duties included: geocoding customer addresses; producing address point maps; and developing demographic reports for the project.
- Performed a study commissioned by the U.S. Department of Housing and Urban Development (HUD) to revitalize a neighborhood located in Norfolk, VA. The purpose of the GIS component was to first establish a socioeconomic base-line then track the progress of the revitalized area as well select surrounding areas. Geocoded address locations, generated point as well as demographic thematic maps, and produced reports of the target areas.
- Provided demographic analysis of proposed newly incorporated areas in Florida for local Florida civic organizations.

Cooperative Hampton Roads Org. for Minorities in Engineering, Norfolk, VA (1991 - 1992)
Computer Consultant - Designed and developed a menu driven student database, used to track hundreds of minority Junior High and High School students that were interested in pursuing science or engineering degrees.

Norfolk State University, School of Education, Norfolk VA (1990 - 1991)
Technical Consultant/Computer Lab Manager- Provided a variety of support to include hardware and software installation; faculty workshops; course instruction; Network Administrator; and technical support.

Engineering and Economics Research (EER) Systems (1989)
Technical Consultant - Coordinated and participated in writing, editing, and formatting technical test documents; central role in the development of the Acceptance Test Procedures for the initial phase of a multimillion dollar Combat Maneuver Training Complex (CMTC) in Hohenfels, Germany; the final review and editing of all test documentation.

Executive Training Center (ETC). Newport News, VA (1988 - 1989)
Vice President & Co-owner - Managed over 11 part-time and full-time employees; assisted in developing and implementing company policies; performed the duties of the Network Administrator for a Novell-based computer training network; and taught several courses by substituting for instructors when necessary (1988- 1989).

Engineering & Economics Research (EER) Systems. Newport News, VA (1986 - 1987)
Hardware Design Engineer and Electronics Engineer - Provided engineering and select project management support for development of the following million/multimillion dollar project efforts:

- Baseline Cost Estimate (BCE) to be used in the procurement of the Combat Maneuver Training Complex - Instrumentation System (CMTC-IS)
- Operational and Maintenance (O&M) Support Plan at the National Training Center (NTC)
- Quality Assurance Surveillance Plan for the O&M Support Plan at the NTC; Configuration Management Plan for CMTC
- Requirements Operational Capabilities (ROC) Analysis for an instrumentation System at the U.S. Army Ranger School, Georgia;
- ROC Analysis for an Instrumentation System at Fort Chaffee, Arkansas;
- Suggested Statement of Work for the Digital Data Entry Device (DDED); and the Concept Formulation Package and Requirements Definition to Support interface and integration of Red Flag at the NTC:
- Phase ll of a multi-million dollar GIS-based concept test demonstration. Performing as Assistant Test Director (ATD) - liaison between the Government Director Army Ranges and Targets (DART) personnel and EER Systems' personnel; and assumed the role of Test Director when required (1987).
- Suggested Statement of Work (SOW) for a $1 million procurement of Multivehicle Player Units (MVPUs) at the NTC. Performing as Project Task Manager for a team of engineers, computer programmers, and technical support personnel in the development of a (I986).

Teledyne Hastings-Raydist, Hampton, VA (1982 - 1986)
Hardware Design Engineer - Designed and developed custom flow and vacuum measuring products; Project Manager for the production and completion of a $.25 million flow measuring system; Electrical Engineer - Chiefly responsible for developing special products for customers.

Major Litigation & Testimony Related Efforts:

Southern Coalition for Social Justice (SCSJ), Durham, NC (2015 - 2016)
Provided expert testimony, deposition and expert report for the *City of Greensboro v The Guilford County Board of Elections* US District Court Case. Deposition and report included several district plans for the city council of Greensboro, NC, and analyzed certain characteristics, including population deviation, political subdivision splits, partisan performance, and incumbent effect analysis.

Provided expert testimony and report for the *Covington v North Carolina* federal redistricting court case. The testimony included analysis from *Dickson v Rucho* (also *NAACP v North Carolina*) of compactness on state legislative house and senate districts.

Provided expert testimony and report for the *Wright v North Carolina* federal redistricting court case. The testimony and report included analysis of population deviation, compactness, partisan impact and incumbent residences for county commission and school board plans.

Alabama Democratic Conference (ADC), Montgomery, AL (2015 - 2016)
Developed senate and house redistricting plans for the state of Alabama for the *ADC v Alabama* court case. Provided deposition on the creation of the plan. Also, generated a series of thematic maps depicting areas added from the previous plan to the enacted plan, displaying concentrations of African American voters that were added to the enacted plan.

Southern Coalition for Social Justice (SCSJ), Durham, NC (2014)
Provided expert testimony, report, and deposition for Federal redistricting court case, *Perez v. Perry* of Texas. The report included analysis of population extrapolations and projections for several submitted plans for select congressional and house districts.

North Carolina NAACP, Raleigh, NC (2012)
Provided expert opinions and analysis in an affidavit for the *NC NAACP v. State of North Carolina* federal redistricting case (later *Dickson v Rucho*). The affidavit included examination of compactness measurements pertaining to the Congressional, State Senate, and State House "Benchmark" plans, several approved plans, and several legislative submitted plans. The report also contained county splits for the target districts.

Southern Coalition for Social Justice (SCSJ), Durham, NC (2011)
Provided expert opinions and analysis in an affidavit for the *Moore v. State of Tennessee* redistricting case. The affidavit included analysis of county splits comparing State Senate "Benchmark" plans, the approved plan, and several legislative submitted plans.

Texas NAACP, San Antonio, TX (2011)
Provided expert testimony, report, and deposition for federal redistricting court case *Perez v. Perry*. Testimony covered the evaluation of traditional redistricting criteria of the Congressional and House approved plans compared to several proposed or legislature submitted plans.

Louisiana Legislative Black Caucus, Baton Rouge, LA (2011)
Provided expert testimony in front of the Senate and Governmental Affairs committee. Testimony included the analysis of two redistricting plans comparing ideal population deviation, political subdivision splits (Parishes); and compactness ratios. Also, developed a redistricting plan and testified in front of the House and Governmental Affairs in support of a new majority minority (African American) congressional district in Louisiana.

Morrison & Foerster LLP, Los Angeles, CA (2004)
Provided expert report on several state senate plans for the *Metts v. Murphy* Rhode Island court case. Report contained analysis of communities of interest areas that were not included in the state's enacted plan of the only majority minority district.

Congressional Black Caucus Institute, Redistricting Project, Washington D.C. (2002)
Performed as the redistricting mapping expert for Congressman Hilliard in a consolidated U.S. District redistricting court case in Alabama (*Montiel v. Davis* and *Barnett v. Alabama*). Developed the submitted plan and provided advice to legal counsel for the court case.

Council of Black Elected Democrats (COBED) New York State, New York, NY (2002)
Performed as one of the redistricting experts (*Allen v Pataki/Rodriguez v Pataki*) by developing several New York State congressional district plans that were presented by COBED.

Miami-Dade, Florida (1995 - 1996)
Provided expert technical redistricting support as one half of the Expert Master's Team. Developed over 50 commissioner district plans for the county as well as the final adopted plan for the county.

NAACP Legal Defense and Educational Fund (LDEF), New York, NY (1993)
Provided expert technical support for the *Shaw v. Reno* Supreme Court case (via Norfolk State University). Analyzed and compared various compactness ratios for congressional districts throughout the U.S. The results were compared to the 12th congressional district of North Carolina. Also, developed several alternative congressional district plans.

Major GIS/Demographic/Redistricting Training and Presentations:

Congressional Black Caucus Institute, Washington, DC (2016)
Presented at the annual legislative conference in Tunica, MS. Presented the election demographic analysis and for the 2016 presidential and Senate elections. Panel included Congressman Cedrick Richmond (LA), Congressman Sanford Bishop (GA), and Professor Spencer Overton.

Coalition of Black Trade Unionists (CBTU), Chicago, IL (2015)
Presented at the annual CBTU conference on the election panel that included Congressman Al Green (TX) and Congressman Bobby Rush (IL).

Nobel Women's Initiative, Washington, DC (2015)
Presented on a panel at the annual conference in San Diego, CA on the upcoming 2020 census.

Tennessee NAACP, Nashville, TN (2011)
Provided redistricting training session on the mapping and demographic aspects of Redistricting.

Congressional Black Caucus Institute, Washington, DC (2002 - 2012, 2014)
Presented "The Demographics of Campaigns" twelve times at the institute's annual political campaign "Boot Camp." The presentation covers how to locate and utilize demographic data for political campaigns.

Congressional Black Caucus Foundation (CBCF), Washington, DC (2011)
Presented as one of the panelist at the" Judge A. Leon Higginbotham" Braintrust at the CBC Annual Legislative Conference. The panel was moderated by Congressman Mel Watt.

The Advancement Project, Washington, DC (2011)
Trained staff GIS person on Maptitude for Redistricting as well as on redistricting scenarios.

National Association for the Advancement of Colored People, Baltimore, MA (2011)
Provided training session on "Redistricting Mapping Overview" at the organization's national redistricting training seminar for state and local chapters.

Congressional Black Caucus Institute, Washington, DC (2010)
Presented at the annual CBC Institute conference in Tunica, MS (The panel included Congressman John Lewis and Congressman Jim Clyburn). Outlined two critical issues that would surface in the 2010 round of redistricting: 1) Prison-based Gerrymander; and 2) The Use of Citizen Voting Age Population (CVAP).

Community Census and Redistricting Institute (CCRI), Durham, NC (2010)
Developed, managed, and provided hands-on training for the Political Cartographer's side of a week-long intensive "redistricting expert" preparation workshop. The workshop trained 18 political cartographers on all aspects of plan development.

North Carolina University's Center for Civil Rights, Chapel Hill, NC (2010)
Provided presentation on "Redistricting Laws & GIS" at the *Unfinished Work* conference. The presentation outlined the evolution of major redistricting laws and GIS and their impact on minority representation.

NAACP Legal Defense Fund AIRLIE Conference, AIRLIE, VA (2010)
Provided training using hands-on "paper" redistricting scenario to voting rights advocates on developing a plan without the use of computers.

Young Elected Officials, Los Angeles, CA (2010)
Provided training using hands-on "paper" redistricting scenario to young legislators on developing a plan without the use of computers.

Young Elected Officials, Alexandria, VA (2010)
Provided overview training on the major aspects of redistricting to young legislators.

North Carolina University's Center for Civil Rights, Chapel Hill, NC (2006)
Provided presentation on "Congressional Elections Won by African Americans Race & Ethnicity District Perspective (1960 - 2004)" at the *Who Draws the Lines? The Consequences of Redistricting Reform for Minority Voters* conference.

Howard University - Continuing Education - HBCU GIS Workshop, Washington, DC (2002)
Provided presentation on redistricting and the use Maptitude for Redistricting to faculty members of Historically Black Colleges and Universities (HBCUs).

Norfolk State University Redistricting Project Training Workshops (1991 - 1998)
Provided redistricting training to the following:

- Alabama State University, Montgomery, Alabama
- Albany State University, Albany, Georgia
- Florida A & M, Tallahassee, Florida
- National Conference of Black Political Scientists, Atlanta, Georgia Conference
- Norfolk State University, Norfolk, Virginia
- North Carolina A & T State University, Greensboro, North Carolina
- North Carolina Central University, Durham, North Carolina
- Southern University, Baton Rouge, Louisiana
- Williams College, Williamstown, Massachusetts

Major GIS/Redistricting/Voter Data Software Experience:

- ArcGIS - GIS Software - Primary GIS Software after 2012 (ESRI)
- ArcGIS Online – Including Story Maps & Web Application Builder (ArcGIS.com)
- GRASS GIS – Open Source GIS (OSGeo)
- Maptitude for Redistricting - Primary Redistricting software, since 2001 (Caliper)
- ESRI Redistricting Online - Beta Tester (ESRI)
- Public Mapping Project - Advisory Board Member (an open source online software)
- GIS Plus (the precursor to Maptitude Software in the mid to late 1990s) - User (Caliper)
- ReapS Redistricting and Reapportionment System - Redistricting software, 1990s (LogiSYS)
- Voter Activation Network System NPGVAN
- Voterlistonline.com Aristotle software Aristotle
- VBASE voter database software

GIS Skillset/Coding Languages:

- Geocoding Data
- Linear Referencing
- Digital Cardinality
- Spatial Statistics
- Suitability Analysis
- Image Classification
- ArcGIS Web Services
- pdAdmin
- Python
- PostgreSQL

ESRI Certificates:

- Learning ArcGIS Desktop (for ArcGIS 10) - 24 hrs training
- Turning Data into Information Using ArcGIS 10 - 18 hrs training
- Basics of Raster Data (for ArcGIS 10) - 3 hrs training
- Using Raster Data for Site Selection (for ArcGIS 10) - 3 hrs training
- Working with Geodatabase Domains and Subtypes in ArcGIS - 3 hrs training
- Network Analysis Using ArcGIS - 3 hrs training

Publications:

Books

- *An Introduction to the Presidential Trend*, Statistical Press, March 2015
- *The Presidential Trend*, Statistical Press, December 2013
- *The Democratic Trend Phenomenon*, MediaChannel LLC, October 2008.
- *A Step by Step Guide to Using Census 2000 Data*, MediaChannel LLC, March 2004. Also Included, a companion CD-ROM (sold through various Census related workshops and training sessions and used in a political science course).

Manuals

- *A Beginner's Guide To Using Census 2000 Data*, November 2002 (Co-authored- developed for the U.S. Census Bureau's Census Information Centers)

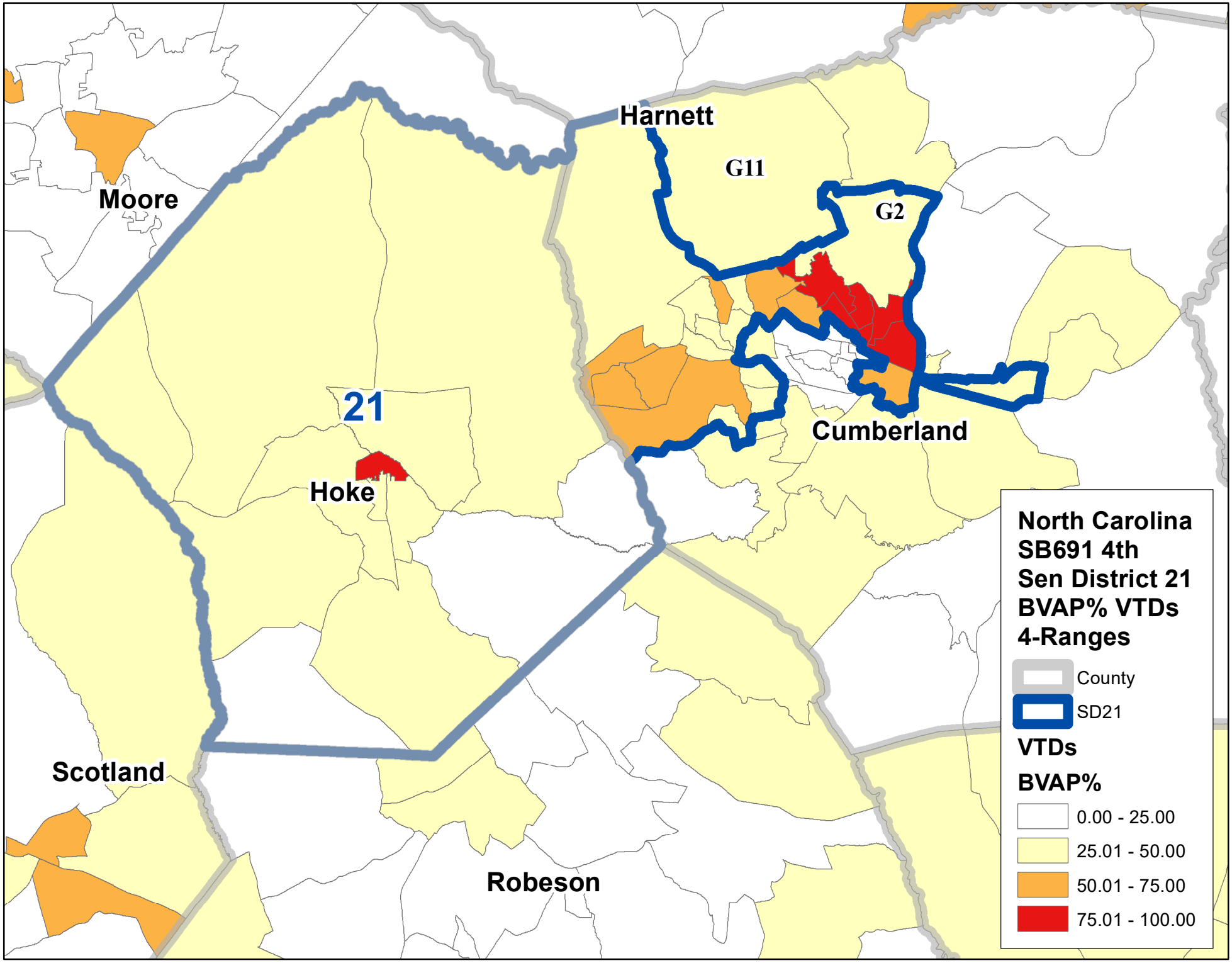
Articles

- "Precision Voter Targeting: GIS Maps Out a Strategy," Geo Info Systems, November 1996 (Co-authored one of the first articles published on using modern day GIS for voter targeting).

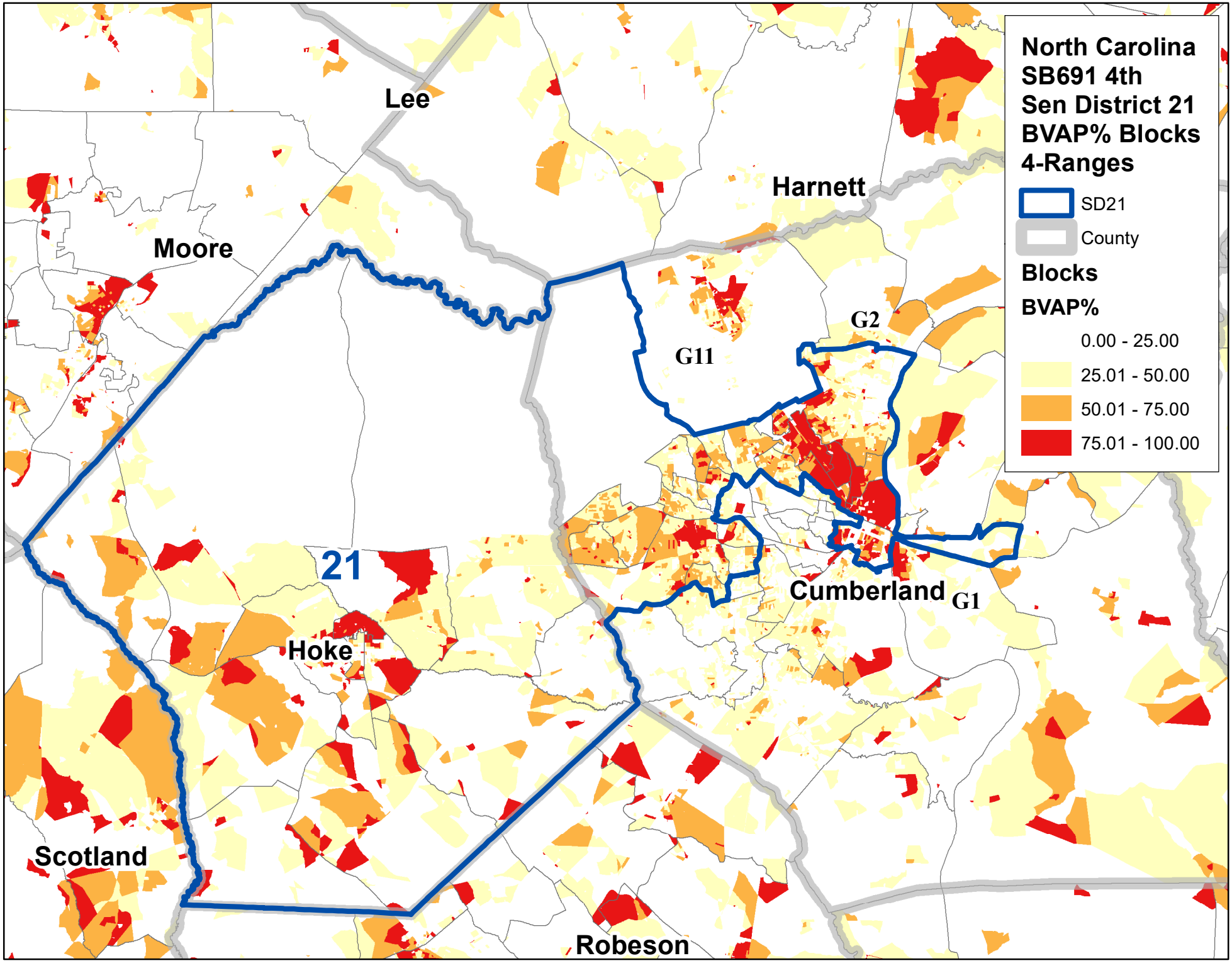
Current Advisory Boards

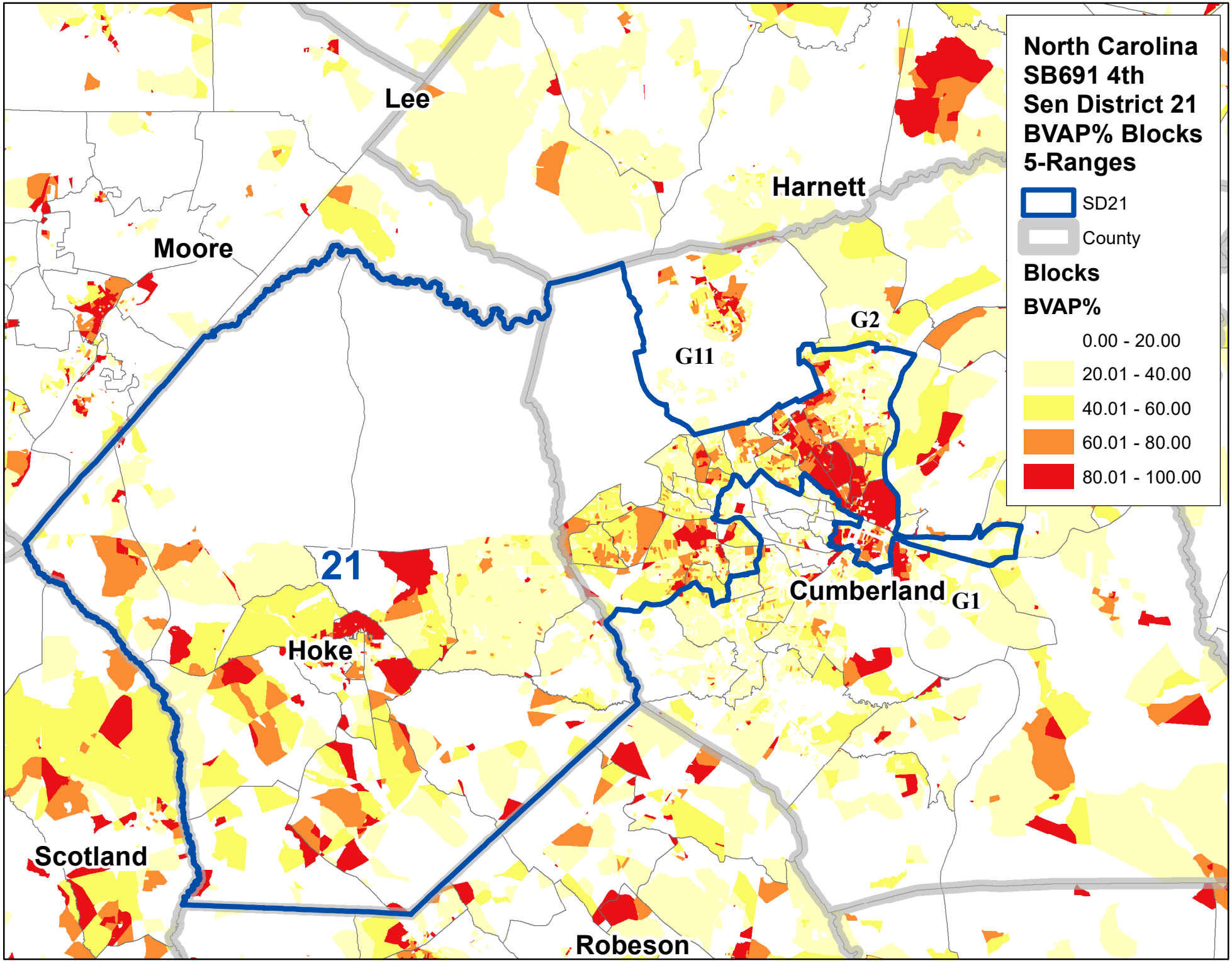
- Virginia Tech Electrical and Computer Engineering (ECE) Advisory Board (Term: 2016 to 2020)
- First Baptist Church of Hampton Trustee Board (Term: 2015 to 2019)

Appendix 2


Harnett
G11
G2
Moore
21
Cumberland
Hoke
Scotland
Robeson
North Carolina
SB691 4th
Sen District 21
BVAP% VTDs
4-Ranges
County
SD21
VTDs
BVAP%
0.00 - 25.00
25.01 - 50.00
50.01 - 75.00
75.01 - 100.00

Appendix 3


North Carolina
SB691 4th
Sen District 21
BVAP% Blocks
4-Ranges
SD21
County
Blocks
BVAP%
0.00 - 25.00
25.01 - 50.00
50.01 - 75.00
75.01 - 100.00
Lee
Harnett
Moore
G2
G11
21
Cumberland
G1
Hoke
Scotland
Robeson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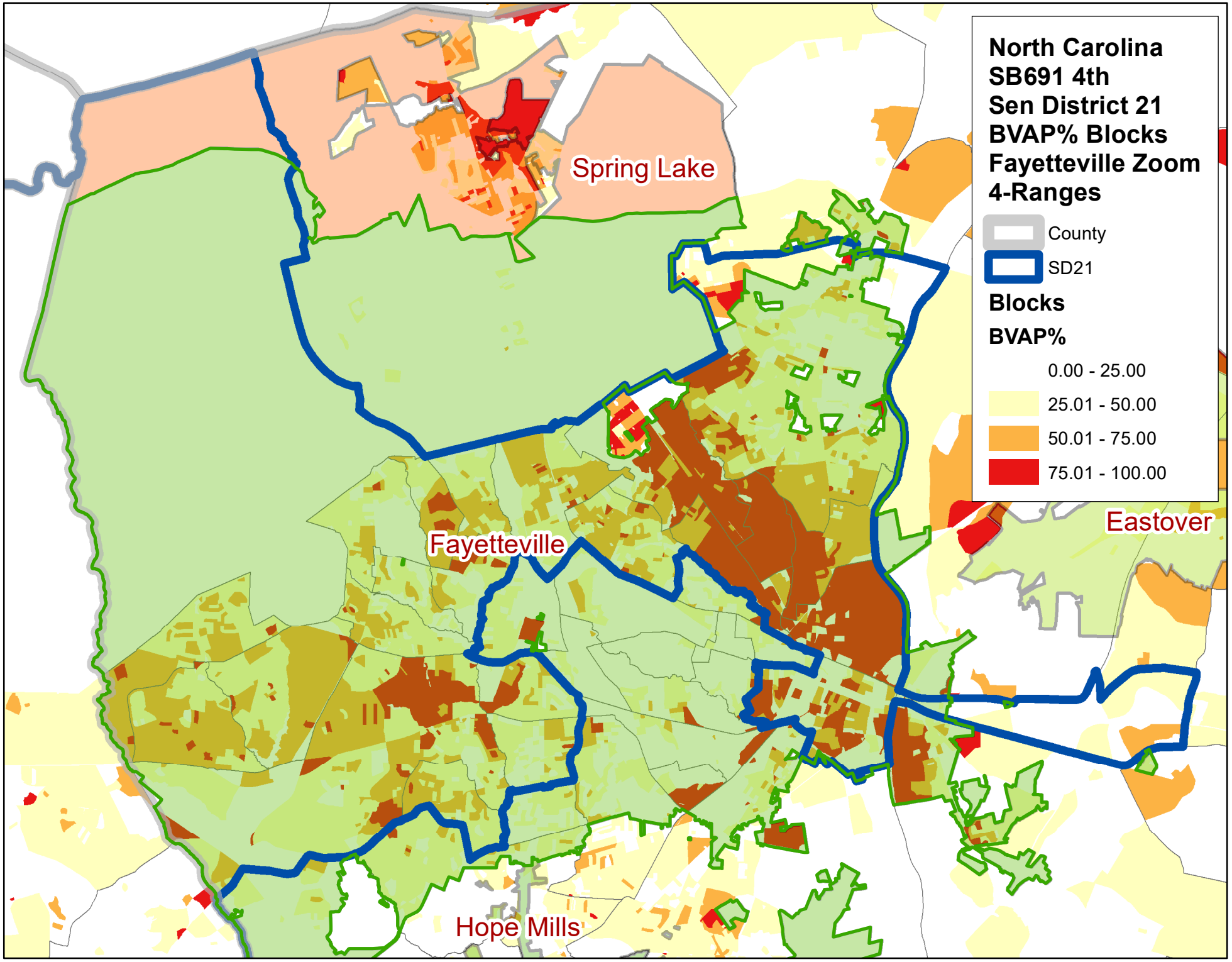
Sen District 21
BVAP% Blocks
5-Ranges
SD21
County
Blocks
BVAP%
0.00 - 20.00
20.01 - 40.00
40.01 - 60.00
60.01 - 80.00
80.01 - 100.00
Lee
Harnett
Moore
G2
G11
21
Cumberland
G1
Hoke
Scotland
Robeson

Appendix 4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Sen District 21
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Fayetteville Zoom
4-Ranges
County
SD21
Blocks
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Eastover
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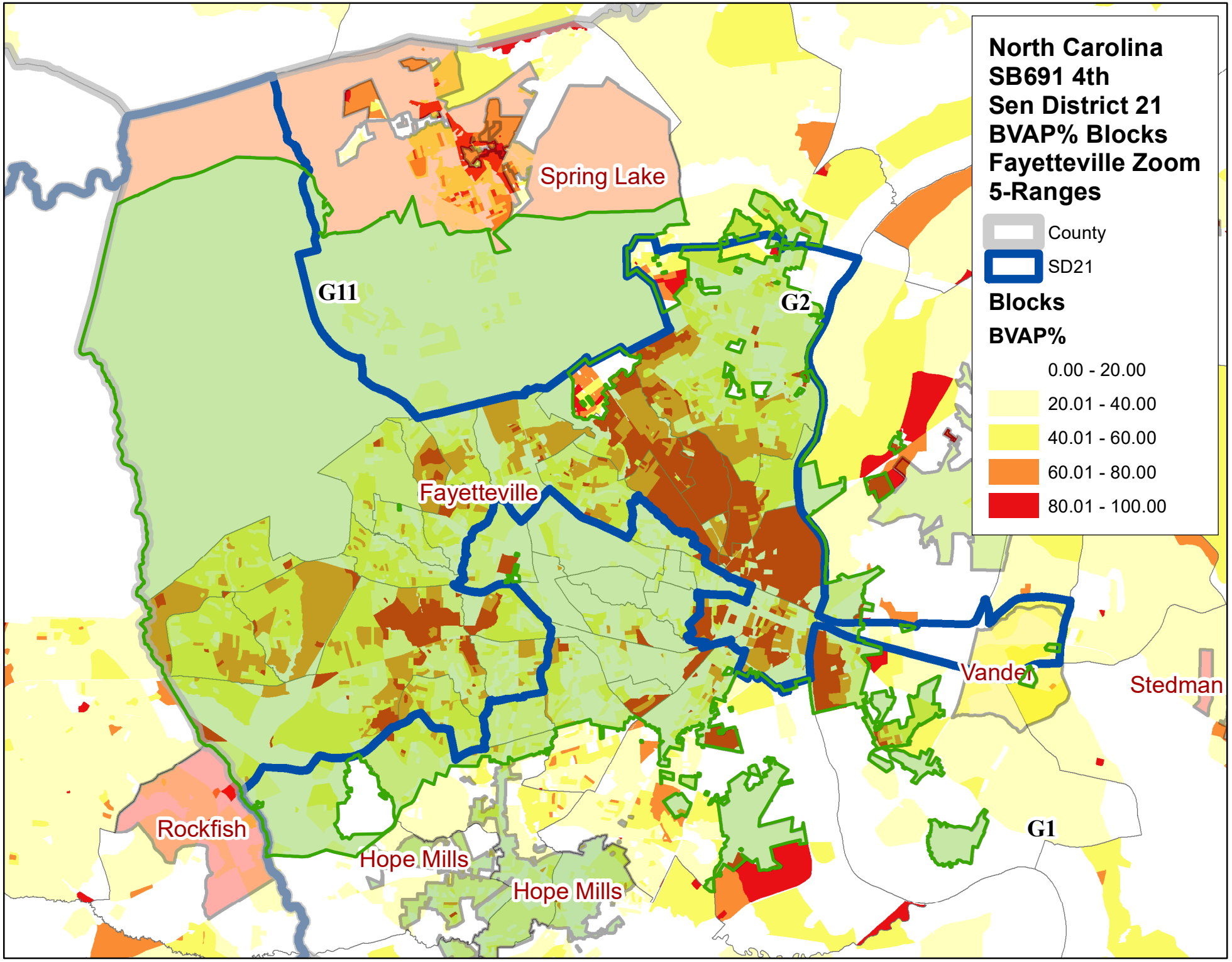
North Carolina
SB691 4th
Sen District 21
BVAP% Blocks
Fayetteville Zoom
5-Ranges
County
SD21
Blocks
BVAP%
0.00 - 20.00
20.01 - 40.00
40.01 - 60.00
60.01 - 80.00
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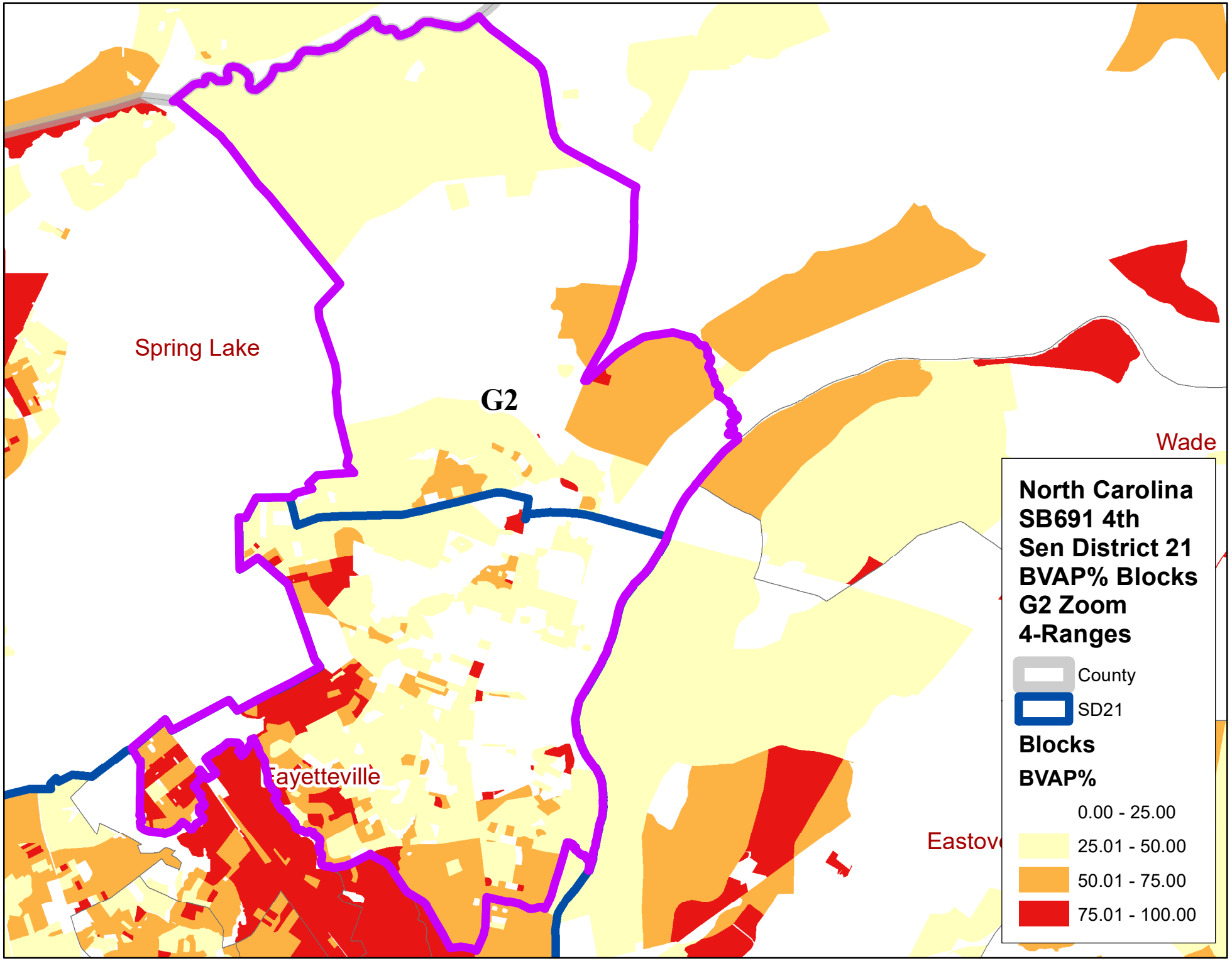
G11
G2
Fayetteville
Vander
Stedman
Rockfish
Hope Mills
Hope Mills
G1

Appendix 5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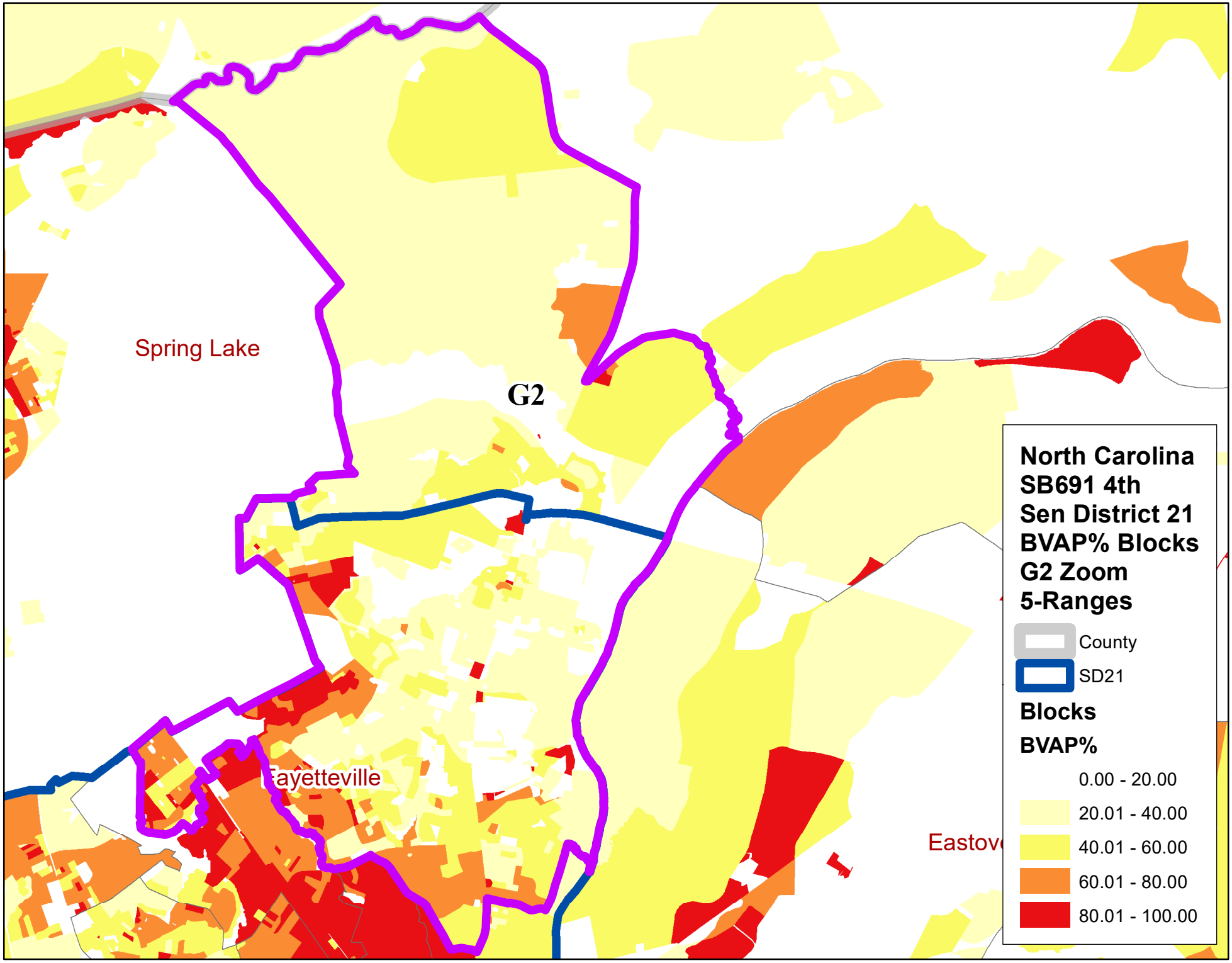
Wade
Fayetteville
North Carolina
SB691 4th
Sen District 21
BVAP% Blocks
G2 Zoom
4-Ranges
County
SD21
Blocks
BVAP%
0.00 - 25.00
25.01 - 50.00
50.01 - 75.00
75.01 - 100.00


Spring Lake
G2
Fayetteville
North Carolina
SB691 4th
Sen District 21
BVAP% Blocks
G2 Zoom
5-Ranges
County
SD21
Blocks
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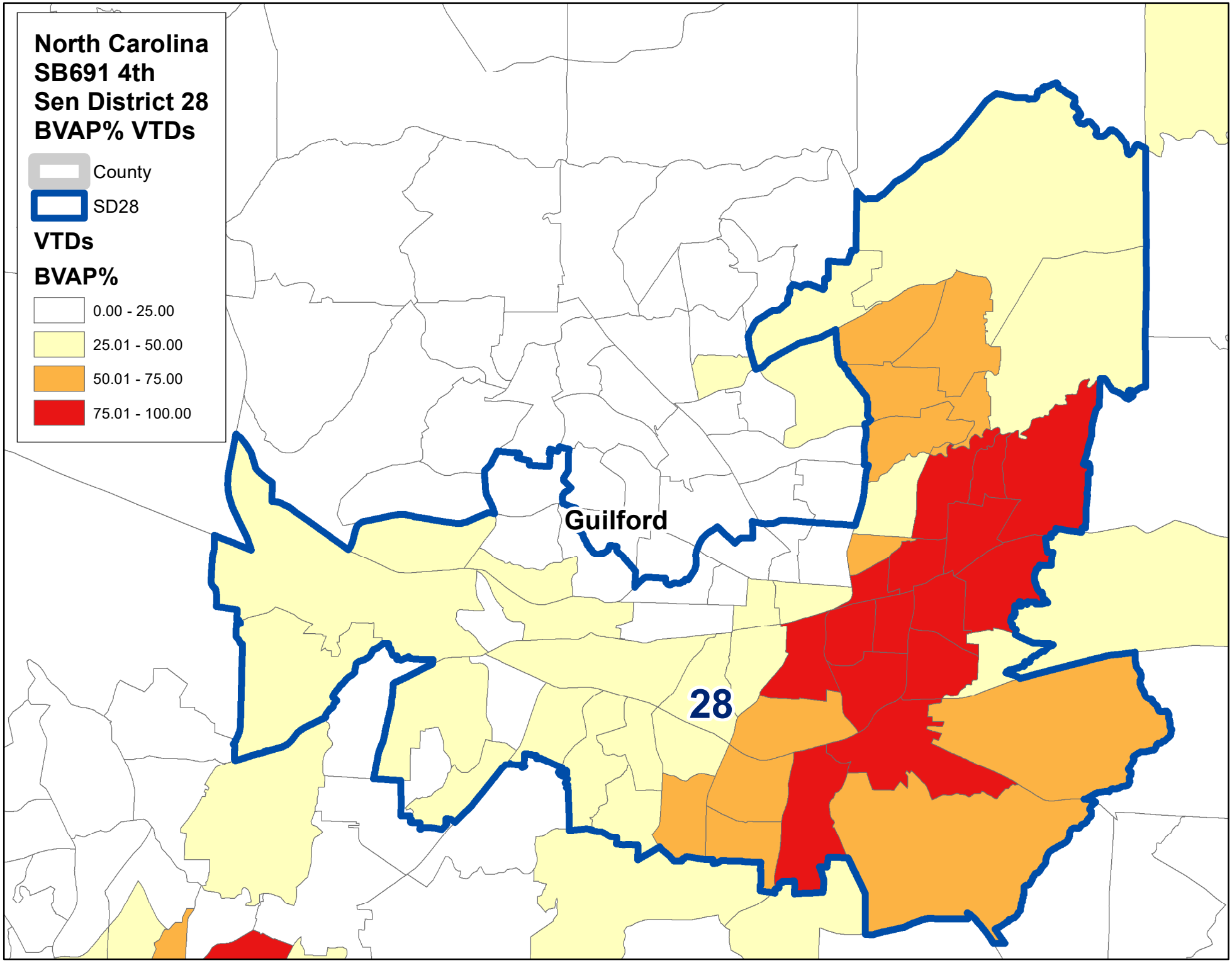
0.00 - 20.00
20.01 - 40.00
40.01 - 60.00
60.01 - 80.00
80.01 - 100.00

Appendix 6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Sen District 28
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County
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VTDs
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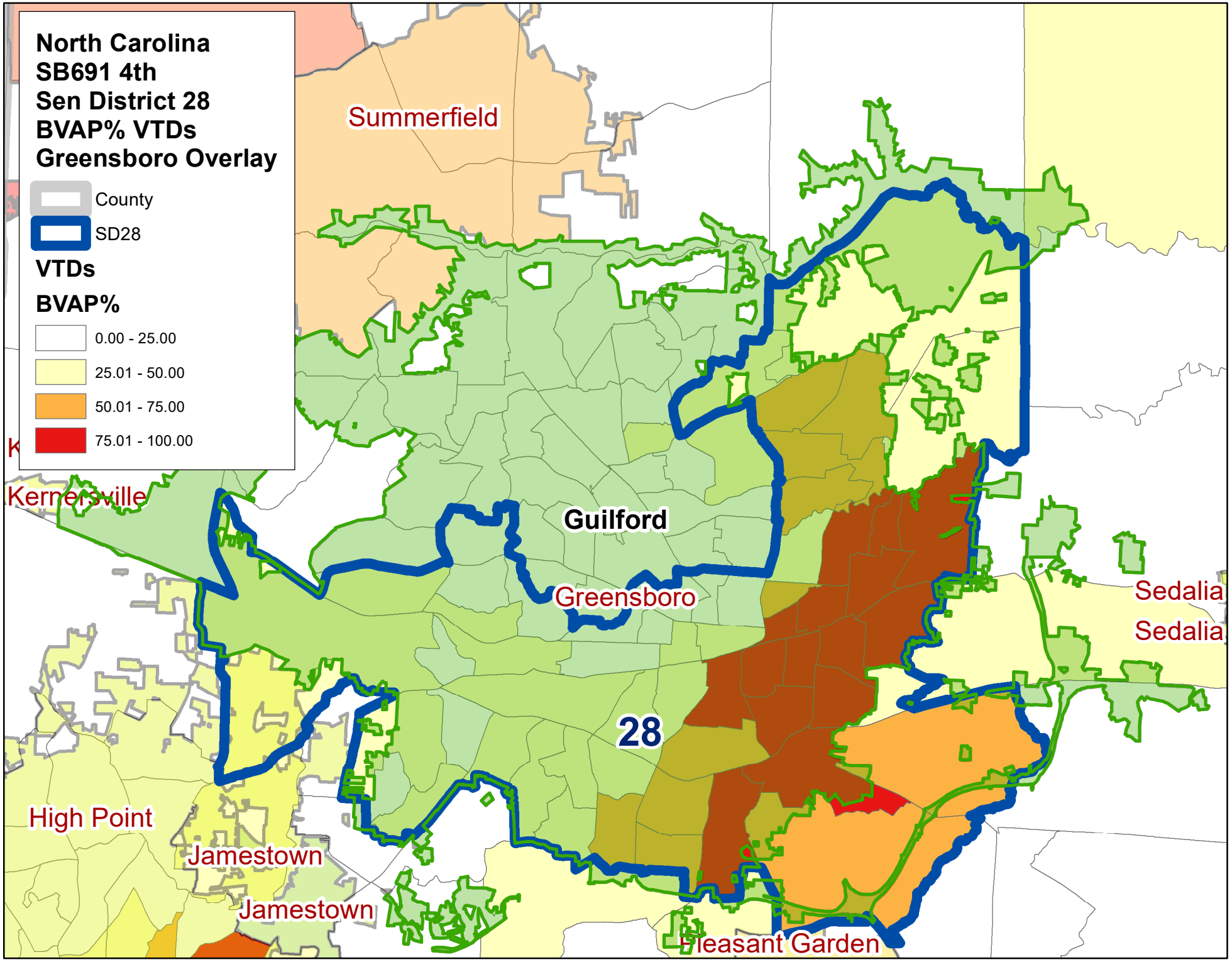
25.01 - 50.00
50.01 - 75.00
75.01 - 100.00
Guilford
28

Appendix 7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Greensboro Overlay
County
SD28
VTDs
BVAP%
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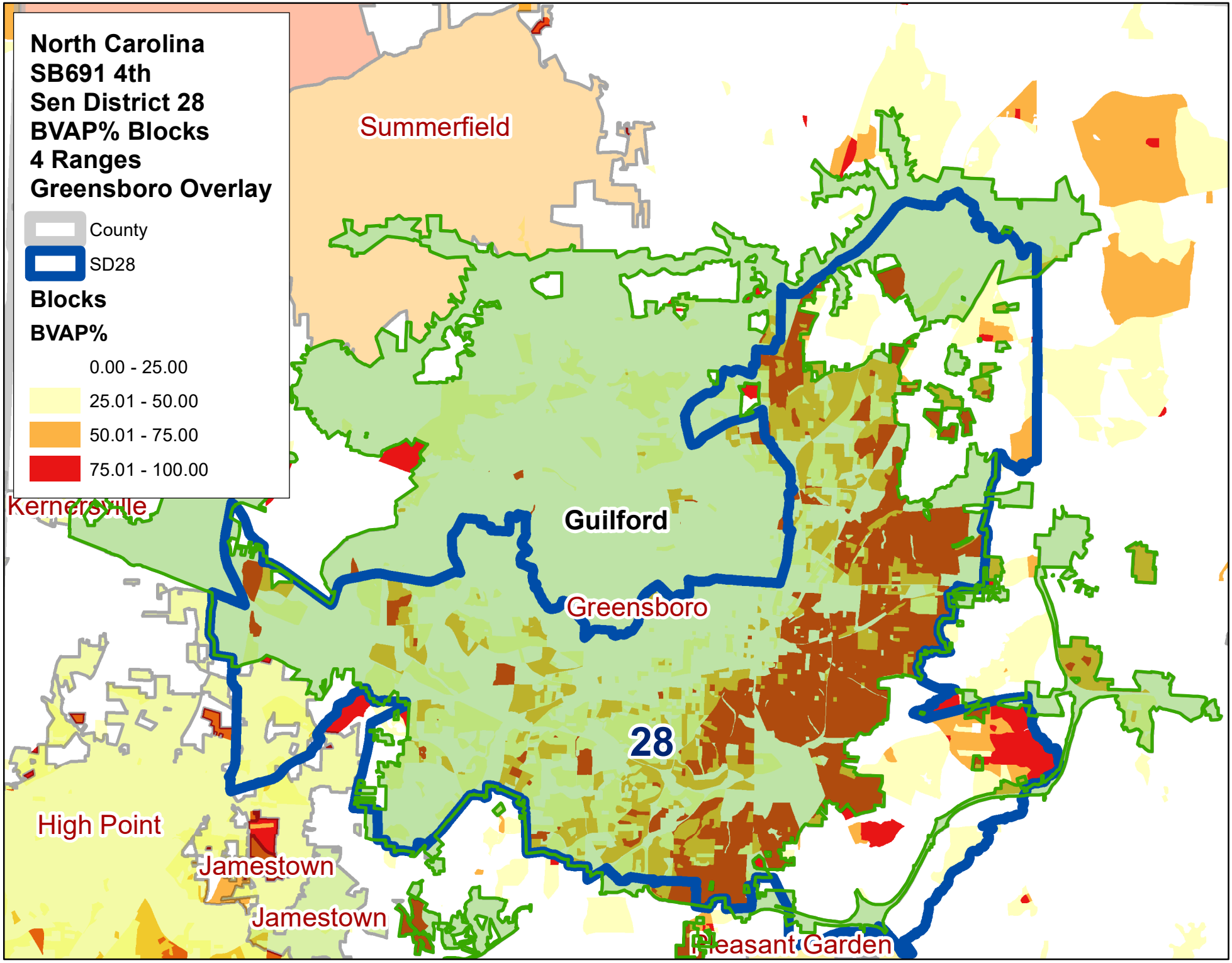
25.01 - 50.00
50.01 - 75.00
75.01 - 100.00
Summerfield
Kernersville
Guilford
Greensboro
Sedalia
Sedalia
28
High Point
Jamestown
Jamestown
Pleasant Garden

Appendix 8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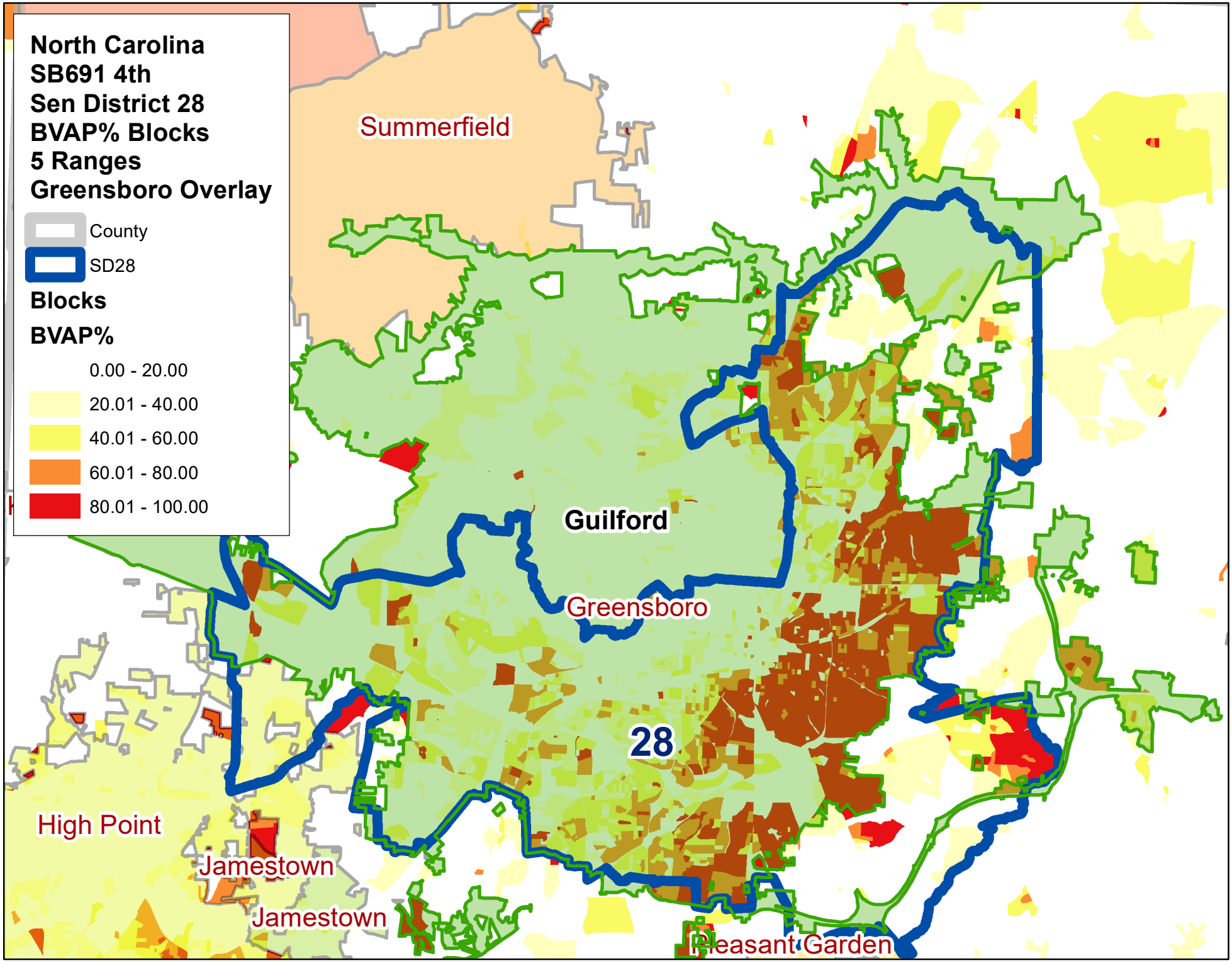
Sen District 28
BVAP% Blocks
4 Ranges
Greensboro Overlay
County
SD28
Blocks
BVAP%
0.00 - 25.00
25.01 - 50.00
50.01 - 75.00
75.01 - 100.00
Summerfield
Kernersville
Guilford
Greensboro
28
High Point
Jamestown
Jamestown
Pleasant Garden


North Carolina
SB691 4th
Sen District 28
BVAP% Blocks
5 Ranges
Greensboro Overlay
County
SD28
Blocks
BVAP%
0.00 - 20.00
20.01 - 40.00
40.01 - 60.00
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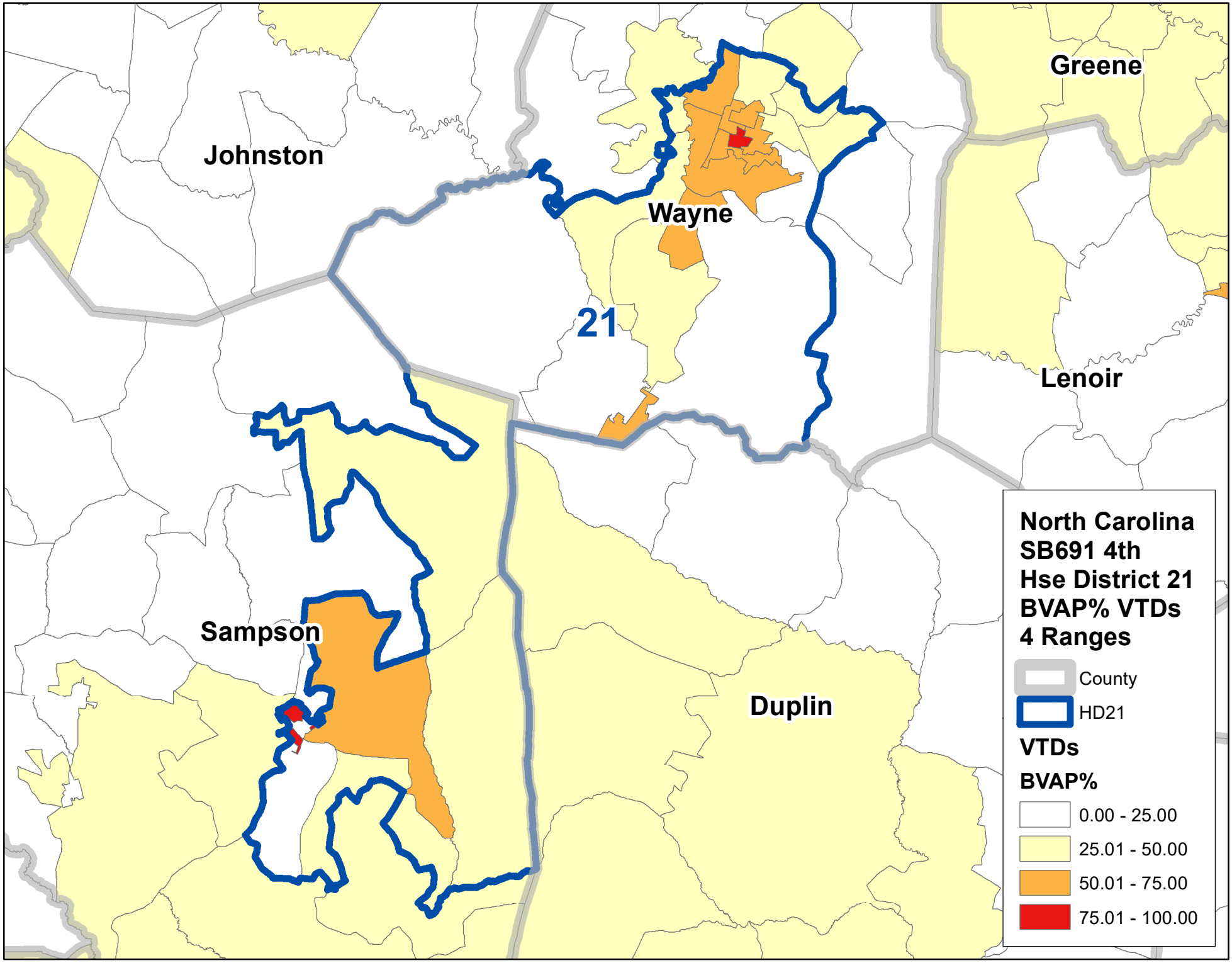
Summerfield
Guilford
Greensboro
28
High Point
Jamestown
Jamestown
Pleasant Garden

Appendix 9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Greene
21
Lenoir
Sampson
Duplin
North Carolina
SB691 4th
Hse District 21
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4 Ranges
County
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VTDs
BVAP%
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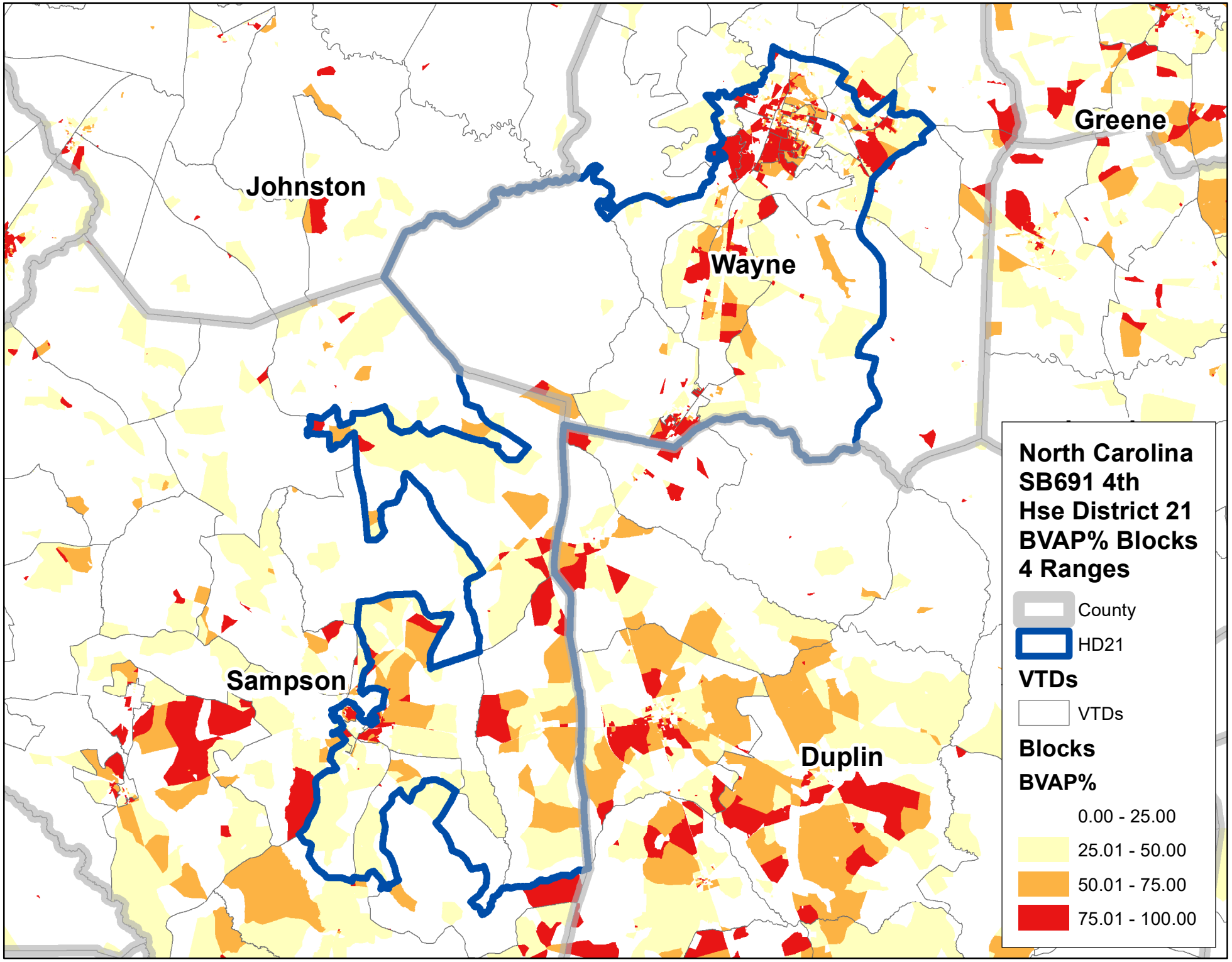
25.01 - 50.00
50.01 - 75.00
75.01 - 100.00

Appendix 10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Wayne
Greene
Sampson
Duplin
North Carolina
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Hse District 21
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4 Ranges
County
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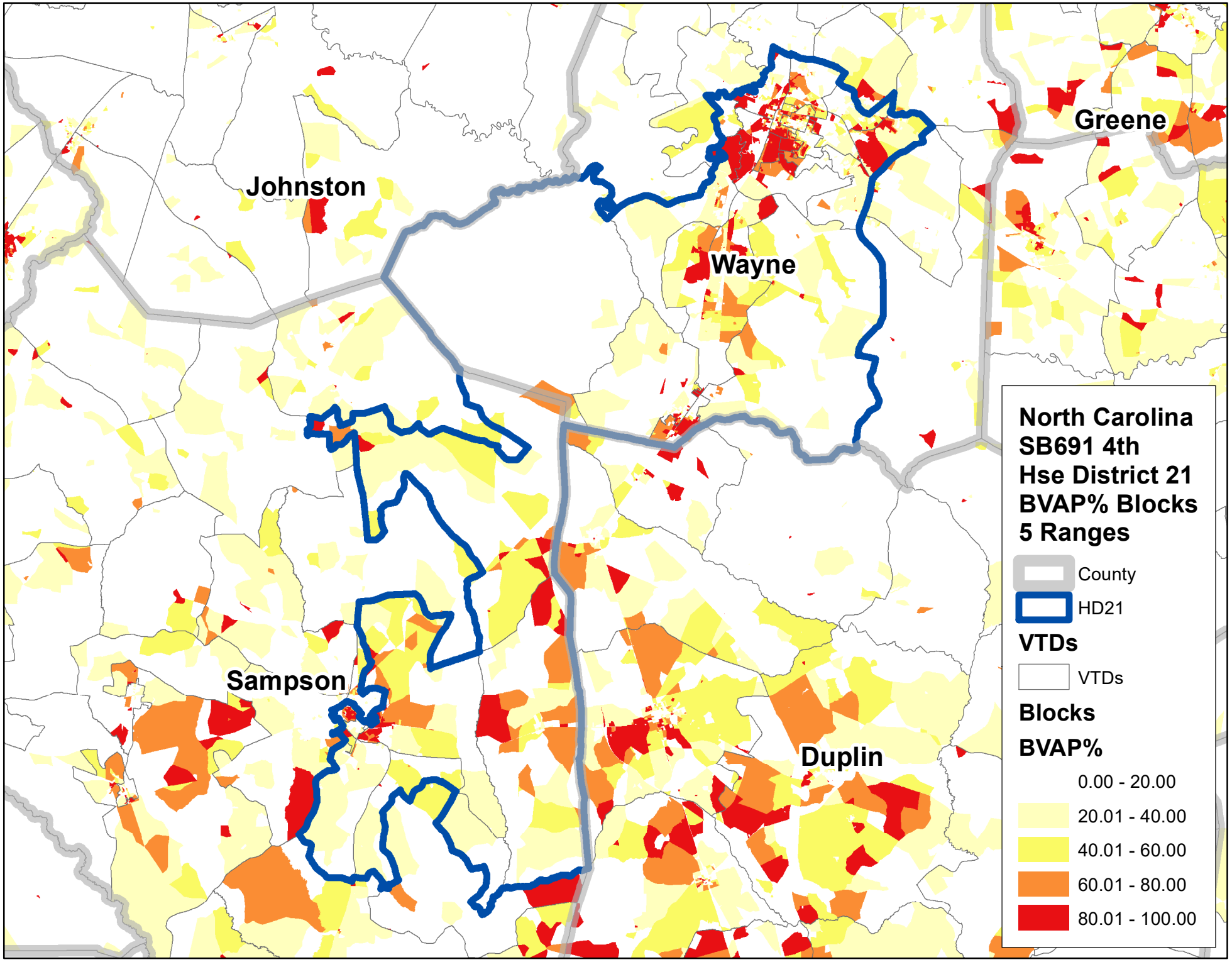
Johnston
Wayne
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Duplin
North Carolina
SB691 4th
Hse District 21
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5 Ranges
County
HD21
VTDs
VTDs
Blocks
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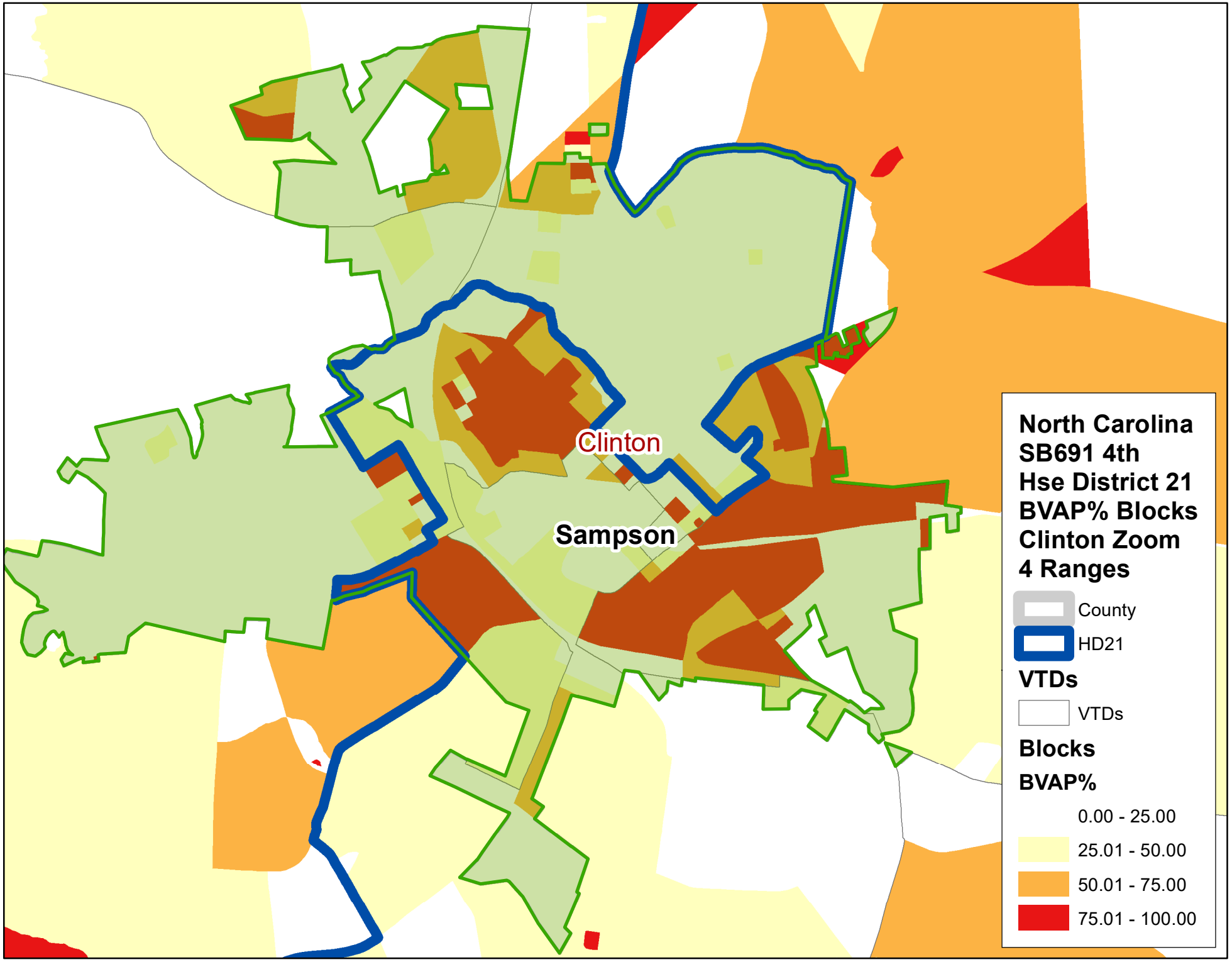
60.01 - 80.00
80.01 - 100.00

Appendix 11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4 Ranges
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Blocks
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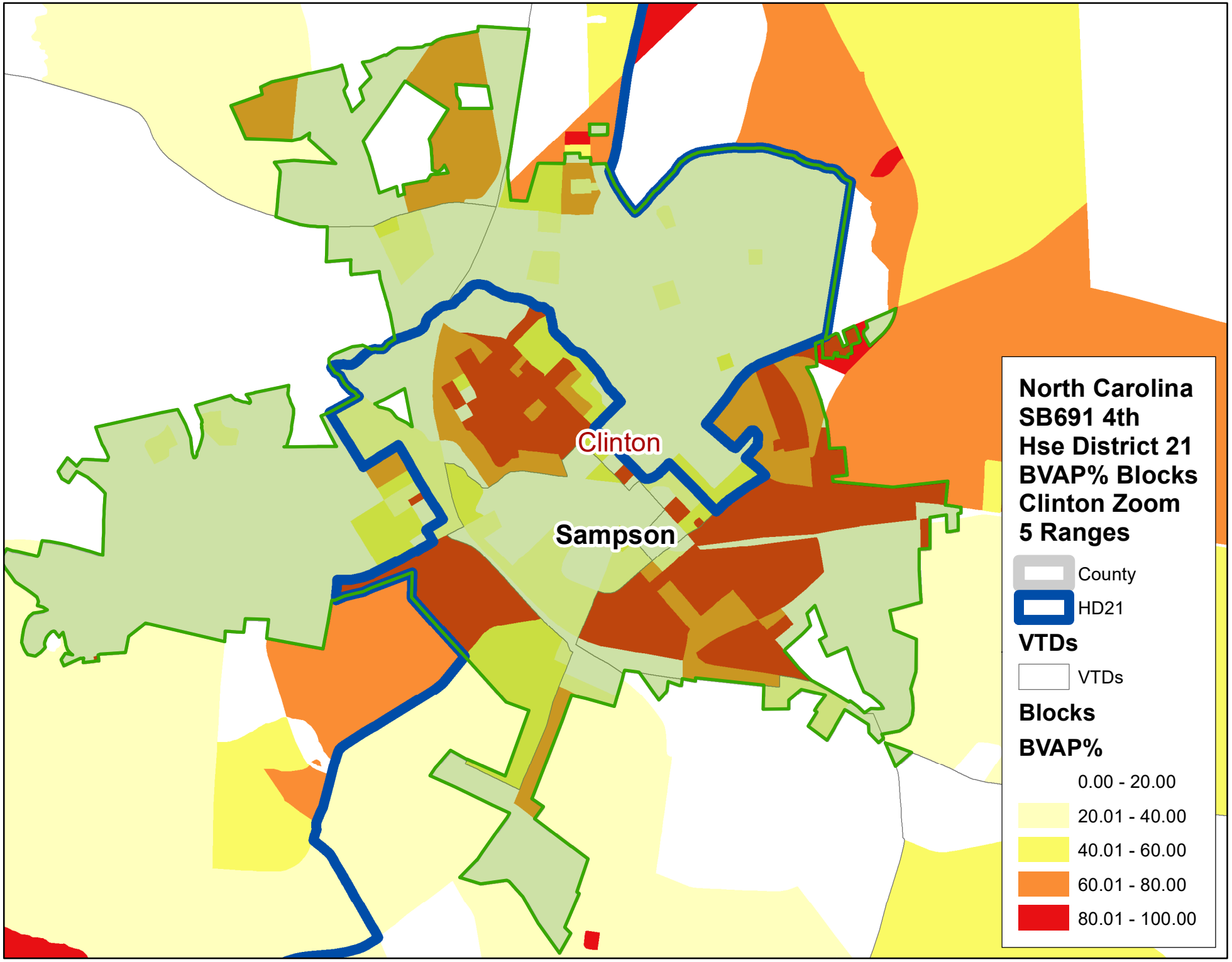
Clinton
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Clinton Zoom
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County
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VTDs
VTDs
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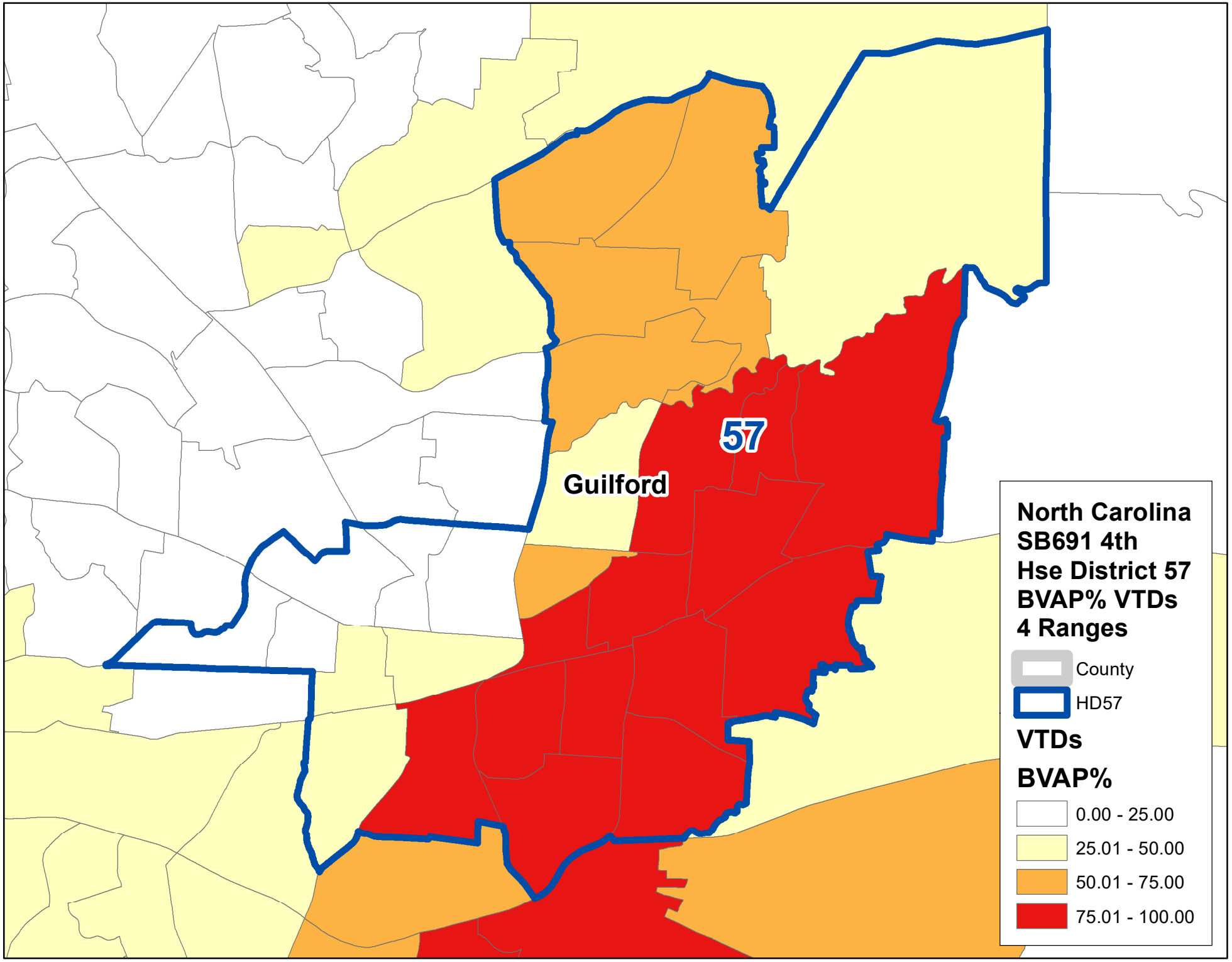
80.01 - 100.00

Appendix 12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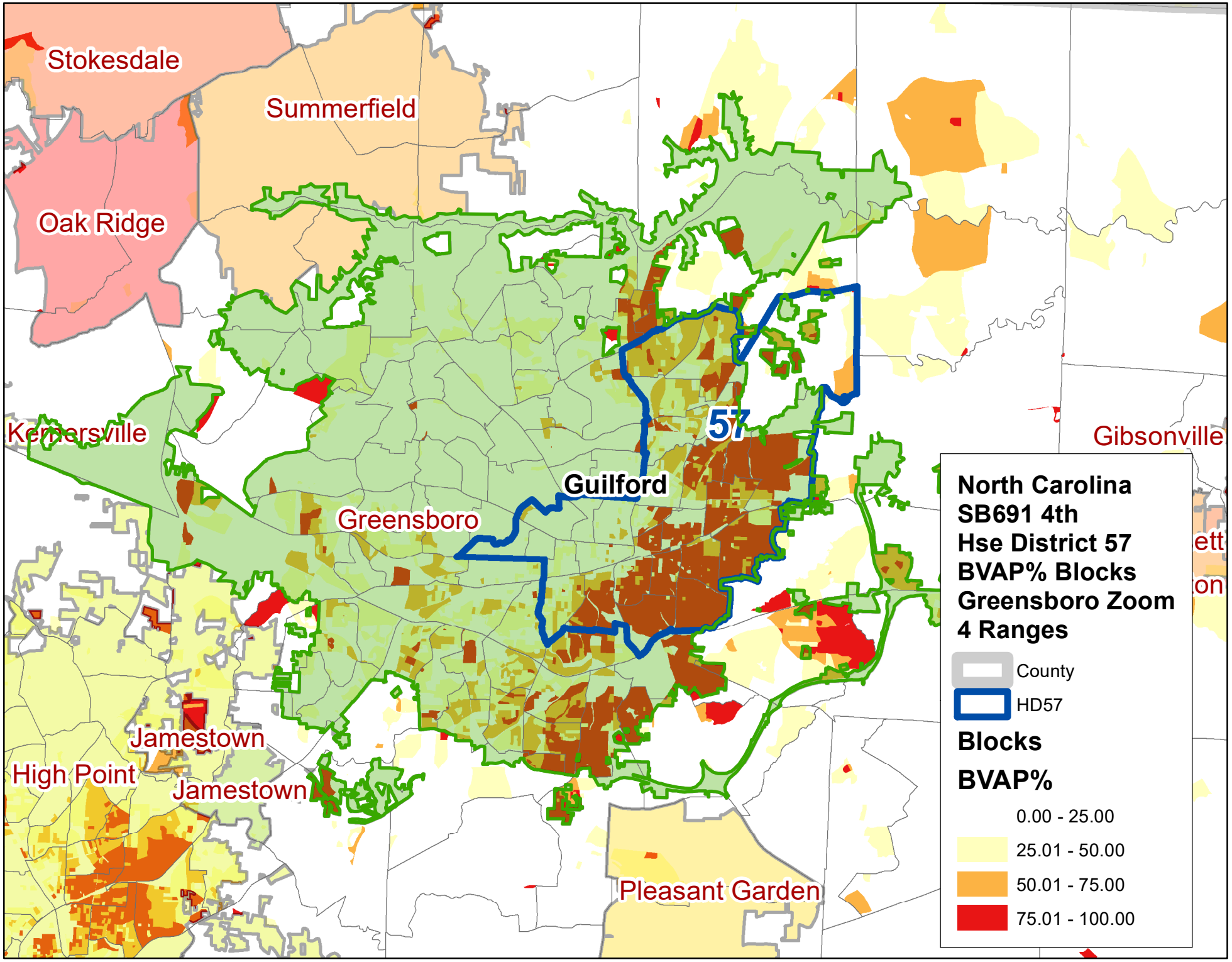
Appendix 13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Summerfield
Oak Ridge
Kernersville
Gibsonville
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Guilford
Greensboro
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High Point
Jamestown
Pleasant Garden
North Carolina
SB691 4th
Hse District 57
BVAP% Blocks
Greensboro Zoom
4 Ranges
County
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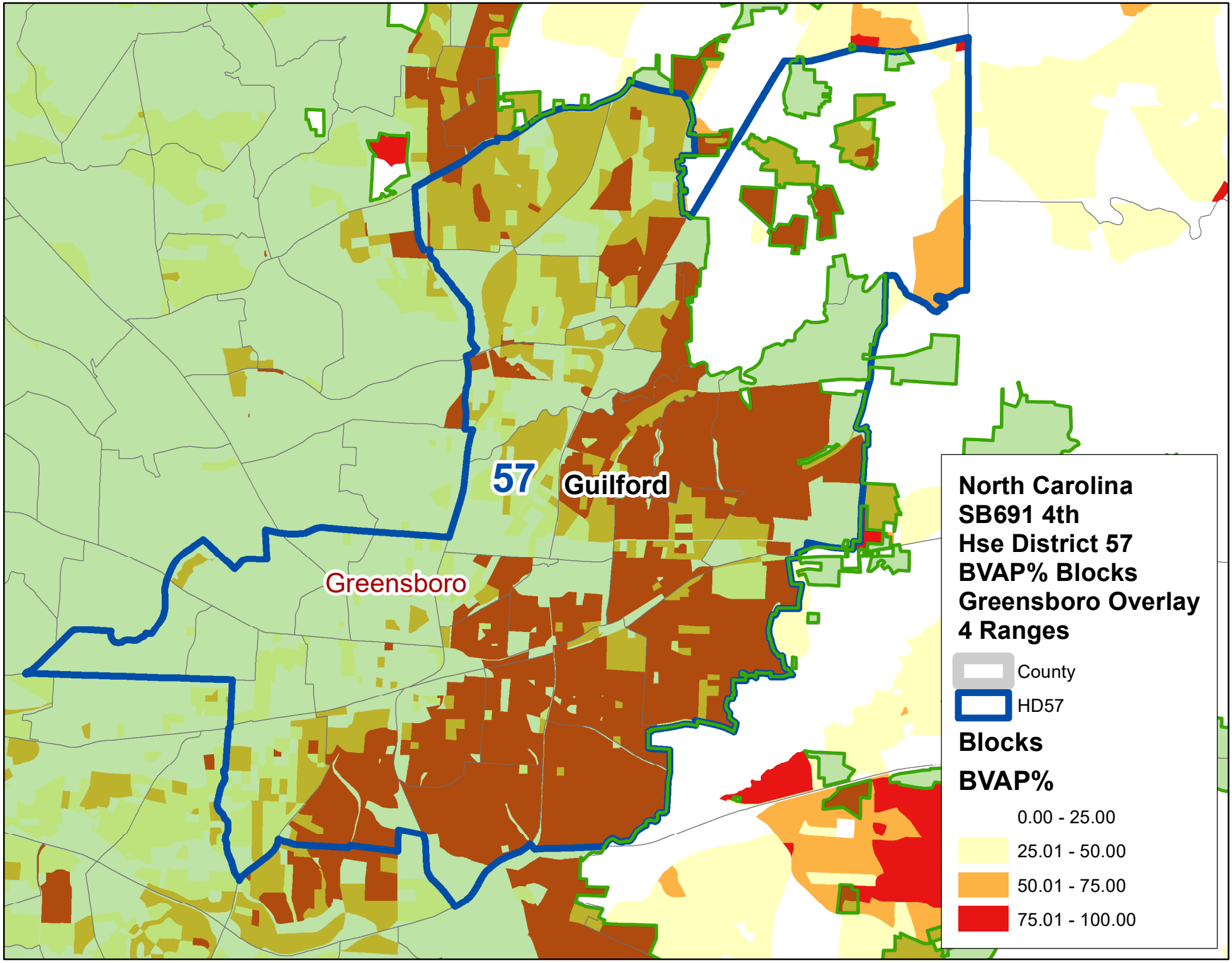
75.01 - 100.00

Appendix 14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North Carolina
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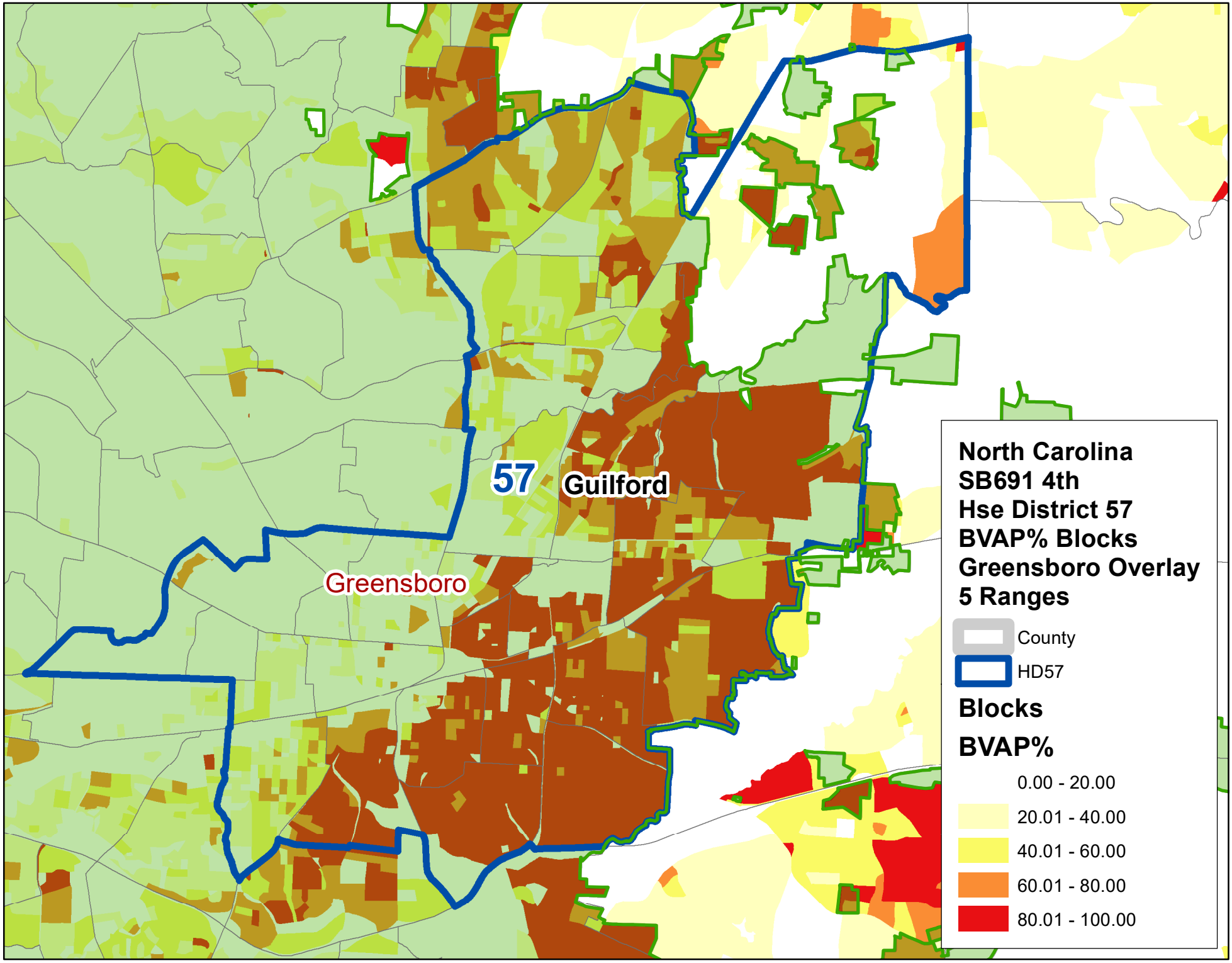
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County
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0.00 - 20.00
20.01 - 40.00
40.01 - 60.00
60.01 - 80.00
80.01 - 100.00